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ON

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UNDER THE DIRECTION OF

HORACE DOBELL, M.D., ETC., ETC.

CONSULTING PHYSICIAN TO THE ROYAL HOSPITAL FOR DISEASES OF THE CHEST, LATE SENIOR PHYSICIAN TO THE HOSPITAL, ETC., ETC.

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The Editors much regret that they have been obliged to omit many valuable reports this year, in consequence of their arriving after this Volume had gone to press, and, some of them, in foreign languages requiring time for translation. They beg, therefore, to remind contributors that, *to insure insertion, all matter ought to reach them by the end of September.* It is impossible to publish any communication that does not arrive before November 1st, and when so late as that, it must be in the English language.

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ON THE

ANATOMY, PHYSIOLOGY, PATHOLOGY, ETIOLOGY, AND THERAPEUTICS OF THE THORACIC ORGANS AND THEIR IMMEDIATE ASSOCIATES.

⁂ The responsibility for the contents of each Report rests entirely with the Reporter whose name appears at its head.

CANADA.

(*Report by* William Osler, M.D., L.R.C.P. London, Prof. of the Institutes of Medicine, McGill University, Montreal.)

Empyema.—Dr. Atherton, of Fredricton, N.B., records three cases in the "Canada Lancet" for Sept., 1875:—

Case 1, male, aged 24, presented the usual signs of effusion into the left pleural cavity. Tapped March 18th, when 4½ pints of turbid serum were removed. A considerable amount of air entered the chest during the operation. Four days after he was so much relieved that he rode 20 miles in a sleigh, but the same evening was attacked with fever and dyspnœa. April 6th, a drainage tube was inserted, and 3 quarts of pus removed, and the cavity washed out with a solution of carbolic acid. The purulent discharge continued for nearly six months, varying in amount, the patient at the same time increasing in strength and weight.

Case 2 occurred in a woman, aged 40, married, and followed a pelvic abscess, which was opened April 28th. On May 2nd, she had a chill and complained of pain in the left side. Within a week the physical signs indicated that the left pleural sac was half full of fluid. On the 20th, the aspirator was introduced, and more than a quart of semi-purulent fluid drawn off. By the 27th the side of the chest had refilled, and a free opening was made in the lower part of the left axillary space, and a tube inserted. Six days later a larger tube was put in, and a good deal of fœtid pus came away at the time. The patient was much troubled with a dry hacking cough. Discharge continued freely through June and July, and by the 29th of the latter month she was well enough to be carried down stairs. Unfortunately, having eaten too freely of fruit, she was attacked with "cholera," which proved fatal on Aug. 7th.

Case 3, male, aged 19. The attack followed a relapse of typhoid fever. May 3rd, had a severe rigor and acute pain in left side, and for the next week had all the symptoms of an attack of acute pleurisy. Dulness complete from the clavicle down. Heart pulsated on the right side of the sternum. On the 26th the aspirator was introduced, and 3 pints of sero-purulent fluid drawn off. In five days the fluid had re-accumulated, and a permanent opening was made, a rubber tube inserted, and 3 pints of pus removed. June 7th, about ℥ ij. of pus discharged daily. July 25th, heart beats nearly in the normal position; ʒ ij. of pus discharged daily; large tube replaced by smaller one. Aug. 3rd, tube removed. Aug. 24th, the side has been healed some days. Resonance on percussion good; respiration heard almost as well on left side as on right; apex beat of heart in normal position. It is interesting to note that several of the brothers and sisters of this patient died of phthisis.

Dr. Hornibrook, of Mitchell, Ont., records in the same journal for Nov. two cases :—

Case 1, male, age not stated. First seen in July, and patient had had pleurisy for four or five weeks. Left side distended with fluid, apex beat of heart to right of the sternum, great dyspnœa, and intense pain over the side. An opening was made with a large trocar, and 6 pints of offensive pus drawn off. On removing the dressings next day 5 pints of pus escaped, and from that date until the 8th of Jan. following, about 2 pints of pus was discharged in the twenty-four hours in spite of daily washings with solutions of carbolic acid, silver nitrate, and dilute nitric acid. The patient would not allow the introduction of a drainage tube. After thoroughly cleaning the cavity with water, ℥ j. of tincture of iodine was introduced, and, as no pain was complained of, allowed to remain. The next day there was slight fever, tenderness in the intercostal spaces, and the smell of iodine was perceptible in the breath and urine. From this date there was no discharge of pus, the external opening healed in three weeks, and health and strength were rapidly recovered.

Case 2, female, aged 9, seen June 21st, and then had cough, dyspnœa, great emaciation, and pain in side—said to have existed seven weeks. Left side distended, apex beat to right of sternum. Twenty-five ounces of pus were removed with the aspirator, and ♏ xx. of compound tincture of iodine in ʒ ij. of water injected through the needle. June 24th, improving, cough better, about the same quantity of pus removed, and (the iodine having been forgotten) ♏ v. of carbolic acid in ℥ j. of water was injected.

July 12th, patient much improved. Two ounces of pus removed and iodine again injected, ♏ xx. to ʒ ij. of water. July 26th, patient in good health, cough gone, appetite good.

Quinine in Pneumonia.—Dr. Griffin, of Brantford, Ont., has a paper on this subject in the "Canada Lancet," for January, 1876. "The number of cases treated in the four months of February, March, April and May, 1875, was thirty, exclusive of three or four doubtful or complicated cases; of these thirty cases, eight did not pass beyond the first stage, having shown only moderate dulness, with fine crepitation and the usual rational symptoms. There remain twenty-two cases in which decided hepatization took place, occurring mostly in from two to five days after the advent of the attack. . . . . "They may all be regarded as well marked cases of pure pneumonia, which advanced to the stage of hepatization; the leading signs, besides the constitutional symptoms, being great dulness and pure bronchial breathing over some portion of one or both lungs." "On it becoming evident that hepatization of some portion of the lung had taken place, each case was placed on quinine, in average daily doses of 24 to 32 grains."

"The average duration of the disease in these cases was thirteen days; but had the whole thirty cases been included, it would have been less than nine days. There were two fatal cases, which in thirty cases would be 6⅔ per cent.; the range in number of cases is not wide enough, however, to admit of any important inference being drawn from the per centage of fatal results."

Cirrhosis of Left Lung.—Dr. Stewart, of Brucefield, Ont., records in the "Canada Lancet," for February, 1876, a case of "Unilateral Contraction and Induration of Left Lung" occurring in a girl aged 18, who had, up to March, 1871, enjoyed good health. At that time she caught cold—her physician called it chronic bronchitis—and has not been well since. "She is very thin, weighing only 90 lbs., and complains of cough and shortness of breath on exertion. The expectoration is glairy, viscid, white in colour, not excessive in quantity. Temperature normal. She is subject to slight attacks of bronchial catarrh; has never had night sweats; appetite good; bowels regular."

Physical Signs:—"On inspection there is at once noticeable a marked contraction of the left side. On taking a full respiration, we notice that there is no inspiratory expansion whatever; in place of the chest walls expanding during this act, we see them fall in between the fourth intercostal space. On further inspection, we also see an impulse in the second left intercostal space, two inches from the left border of the sternum; this impulse is systolic in rhythm. On laying the hand over this part, a distinct diastolic shock is felt. The apex beat is ill defined—situated on a level with the nipple, and immediately inside it—so that it is displaced upwards and outwards.

The vocal fremitus is diminished. Percussion over the whole of the diseased side in front gives an absolutely dull note. Posteriorly towards the base the note is of the same character. In the supraclavicular regions, the dulness is not absolute. The resonance on the sound side is exaggerated; the right lung extends a quarter of an inch beyond the left border of the sternum. The liver is displaced an inch downwards by the right lung. We also find the diseased lung so much retracted as to allow the stomach to ascend to the fourth intercostal space. . . . The respiratory murmur at the apex in front is tubular in character, and accompanied by whistling râles; further down, there is scarcely to be heard any respiratory murmur whatever. Over all the front of the chest, and towards the base behind, the heart sounds are very loud. Behind, the respiration is blowing in character over the scapula; further down, and along the vertebræ, it is harsh, and in the latter situation accompanied by cooing râles. The breathing on the right side, both in front and behind, is exaggerated. Along the vertebræ there are also a few râles to be heard on this side, but their appearance is only of late occurrence. Posteriorly the breath sounds are heard three inches lower down on the right than on the left side. The vocal resonance is increased both anteriorly and posteriorly."

Tracheotomy in Croup successful.—Dr. H. P. Wright, of Ottawa, records a case in the "Canada Medical and Surgical Journal" for October, 1875. The patient, a male child, aged 7, was first seen on the night of the 5th of August, and found suffering from all the symptoms of membranous croup. Vomiting was induced with vin. ipecac., and slight relief obtained. On the night of the 7th, symptoms became alarming, and necessitated the operation. Considerable. hæmorrhage—℥ viii.—followed the division of a vein. The child did remarkably well, and the tube was removed on the 11th.

General Tuberculosis. Primary Tuberculosis Uteri. — Dr. Cline, Assistant House Surgeon, Montreal General Hospital, records a case in the "Can. Med. and Surg. Journ." for March, 1876. Patient, aged 26, was admitted January 5th, and complained of leucorrhœa, amenorrhœa and debility. Eight months before she had been under treatment for two months in the Hospital for the same affections. She was a delicate girl, and much emaciated. No phthisical history. The uterine trouble was the only thing complained of, but nothing very definite was detected on examination. Shortly after admission she was noticed to have a cough, and on examination evidences were found of softening in the lungs. On the 25th symptoms of tubercular meningitis came on, to which she succumbed on the 4th of February.

Autopsy.—Ventricles of brain much distended; no central softening. Miliary tubercles about the vessels of pia mater in the sylvian fissures.

Lymph about the base. Nodules of tubercles, eight to ten in number, ranging in size from a split pea to a marble, were found in the substance of the brain, the largest in the cerebellum; one was in the left thalamus opticus. Lungs contained tubercles in all stages of degeneration; no cavities larger than a bean existed. The uterus was enlarged, and the internal surface presented a ragged ulcerated appearance, and yellowish cheesy masses extended into the walls of the organ, which were soft and friable, the right wall especially so; a probe was easily passed through it. In the firmer portions of the walls small cheesy masses about the size of a pea were numerous. The ovaries were also in a condition of caseous degeneration.

Excavation of the whole of one Lung.—In the "Can. Med. and Surg. Journ.," March, 1876, Dr. Cline records a case (which occurred in the Montreal General Hospital, under Dr. Reddy). Patient, a male aged 41, had been in hospital several times with phthisis. On admission this time the disease was evidently very far advanced. The voice was husky, and scarcely louder than a whisper. The expectoration was purulent, very profuse, and brought up with difficulty. In the right lung there was blowing, breathing and gurgling in all the regions. In the left lung the breathing was amphoric, most distinctly so in the infra-clavicular region in front, and at the root of the lung behind. The percussion note over this lung was not amphoric, not the note which resembles that of pneumothorax, though very hollow.

Autopsy.—"The right lung was filled with cavities of all sizes, one in the apex being nearly as large as the fist. On the left side there was no lung tissue, except a small piece at the base in front, about two inches long by an inch and a-half thick, which crepitated slightly. The rest was one immense cavity. The pleura was firmly adherent all around, and, on being carefully detached, collapsed like the flaccid walls of a large bladder. The capacity of the cavity was forty-two fluid ounces. The walls were thin, consisting of the pleura only, except in the situation above mentioned. The inside was almost dry, and traversed by numerous trabeculæ, which represented the thickened vessels and some bronchi. The larger bronchi were ulcerated to a level with the walls."

Acute Fibrinous Bronchitis.—Dr. Worthington, of Sherbrooke, Quebec, records the case, and as the acute form of this disease is exceedingly rare we give it in full:—

"On the 11th of January last I received a very urgent telegram, asking me to meet Dr. McGowan at Bolton. The patient, Mrs. R., wife of the Superintendent of a Mine, is an English woman, forty-one years of age, well-formed, and above the average height. She is the mother of thirteen children, the youngest being only three months old. She has had all the diseases of childhood including hooping cough, and on two occasions suffered from some affection of the lungs, which she describes as being of an inflammatory character, and which she thinks her doctor in Devonshire called Pneumonia. With the exception of the above ailments she has enjoyed uninterrupted good health, and been singularly free from cough, or other indication of lung disease. Some of her relatives, however, on the mother's side, died of phthisis.

"Dr. McGowan's history of the case is as follows:—the extracts quoted being from his notes. When first seen by him on January 7th, 'the pulse was 98, respiration 25 and laboured. On examination by stethescope found the lower lobes of both lungs in a state of engorgement. Ordered sinapisms over the whole chest, and gave liq. ammon. acet. with antim. tart. every four hours, alternately with minute doses of morphia and ipecac.' 'The symptoms remained about the same until the 10th, when there was some improvement, pulse 88, resp. 21, dulness disappeared. On the evening of the 10th, I noticed the tube casts for the first time.'

"It appears that on the evening of the 10th, Mrs. R. was suddenly seized with most alarming symptoms of suffocation, constriction and pain within the chest, particularly on the left side, attended with great distress, countenance and skin livid, dyspnœa, and violent paroxysms of coughing, which ended in her coughing up a quantity of what ultimately proved to be fibrinous tube casts of the bronchi, equal in bulk to about a large tablespoonful, when washed from the accompanying catarrhal expectoration. The sputa were at first, and only at first, very slightly tinged with blood, and a few blood points were observed on some of the tube casts. In a few hours another paroxysm of coughing ended in more expectoration of tube casts, the disappearance of cyanosis, and most marked relief to the patient.

"When I saw Mrs. R., near midnight of the 11th, I had the consolation to find—after my lonely drive of thirty miles—the patient wonderfully calm, breathing quietly, suffering no pain, and anxious only as to the significance of the beautifully-moulded bronchial trees, which had appeared 'in such questionable shape,' and which were carefully preserved in a bottle of water for my inspection. To her and her husband they were ominously suggestive of bronchial tubes! and though I had never seen tube casts before, having only read descriptions of them, I was happy to be able to corroborate, much to the patient's peace of mind, Dr. McGowan's assurances that they were only casts of the bronchial tubes and not the bronchial tubes themselves!

"Some of the larger specimens had a diameter at the base of fully three-eighths of an inch, they were distinctly cylindrical, of a clear white, or perhaps pearl colour, with here and there very minute and delicately coloured pink points.

"One of the specimens I sent to Dr. Howard, of Montreal, was, when fresh, a particularly fine one. In an ordinary quinine bottle of water it floated with its top turned downwards, reaching from the cork to the bottom of the bottle, branching out on each side, and representing a perfect white gem of a tree. That one had, at first, twenty-eight terminal branches, and was at least four and a-half inches in length.

"Perhaps I should say something upon the physical signs, on examination of the chest; but really on this point there is nothing to relate. The patient was better when I saw her, and beyond a carefully prolonged act of inspiration and expiration, as if fearful of inducing a paroxysm of coughing, and slight crepitation, circumscribed, in the posterior and lower part of the left lung, I could detect nothing abnormal. The chest was clear and resonant throughout, except at this circumscribed spot; and the respiratory murmur was perfect. Only a short time before I arrived a free expectoration of casts had occurred.

"I may mention here that all the children in the house had been suffering from hooping-cough for several weeks. There was not at any time in the case what could be called hæmoptysis; only a few of the tubes had blood points, and a few times, early in the case, the mucus coughed up with the cast, was tinged with blood. Beyond this there was no hæmorrhage; a circumstance rather unusual, I believe, in such cases.

"I used above the word 'quantity,' to mark the amount expectorated, but will be a little more definite. Dr. McGowan had saved five or six magnificent specimens for himself, as well as some broken ones; besides these I was shown a large pickle bottle containing upwards of twenty casts, measuring each from two to five inches in length. All these had been coughed up before I saw the patient.

"On the 20th April I saw Mrs. R., as she passed through Sherbrooke, on her way to England, but only for a few minutes. She had no cough or other evidence of lung affection. She told me that she had coughed up casts, in greater or lesser quantity, every day, up to near the end of March. Her estimate and that of her husband, as to the quantity, was that when carefully washed from all mucus, *the casts themselves* would more than fill an eight ounce bottle, an estimate in my opinion much within the mark. They were carrying with them some remarkably fine specimens to England.

"At no time during Mrs. R.'s illness, did her cough, or other symptoms, present the slightest resemblance to hooping-cough.

Miner's Lung.—Dr. Wm. Osler, of Montreal, describes in the "Can. Med. and Surg. Journ." for Oct., 1875, the coarse and microscopic appearances of this affection as met with in a Nova Scotian miner, who died of hæmorrhagic small-pox after an illness of five days:—

"Post-mortem examination, four hours after death—On opening the thorax the lungs appeared very full in volume, and instead of collapsing, projected slightly forward. The lower lobe of the right lung was adherent to the pleura in front, and laterally by thin, delicate bands, apparently not of old date. Left lung and upper part of right free. No fluid in the pleural cavities. On removal from the chest both lungs presented over their whole surface a uniform, deep blue-black colour; so general was it, that not a trace of the natural hue of the organ remained. At the apices and in front the colouration was not as intense as in the posterior regions, but here it was exaggerated by the hypostatic congestion existing in these parts. Both lungs were crepitant throughout and floated in water. Cicatrices existed at the apices. Several patches of collapse were noticed along the anterior free margins. Pulmonary pleura somewhat opaque, and thickened to such a degree that even with a lens the air-cells could not be seen through it, except at one border where they were much dilated and emphysematous. At spots, probably corresponding to the interlobular septa, the colour was darker than at others. On section the organs presented an intensely black colour, and the serum which flowed from the cut surface was of an inky hue. The posterior lobes were sodden and œdematus, but still crepitant and floated in water. Here and there throughout the substance small patches of apoplexy—the largest the size of a walnut—could be seen. When squeezed, a fluid like ink could be expressed, which left a dark stain upon the hands. Repeated washing of a portion of lung diminished considerably the intensity of the colouration. On the surface of a portion thus treated, different shades of pigmentation can be seen. Round or linear patches, ranging in size from a pea to a hazel-nut, of an intensely black colour, exist in large dark, slate-grey areas. In many of these spots the air-cells can still be detected; in others they appear to be obliterated, and the section in this case is uniform, not porous. On careful dissection I was able to demonstrate in nearly every instance that these spots had a small bronchiole penetrating them, and this can be seen in several of the specimens. These patches, when excised and placed in water, always sank, even when air-cells could be seen in them. Many such existed just beneath the pleura, and their situation was easily told, not only by the deeper colour at these localities, but also by the fact that a slight superficial puckering sometimes existed. To the feel they were also firmer, more solid, than the other parts of the lungs; not so much so, however, as the apoplectic spots. The portions of lung tissue intervening between these intensely pigmented areas were of a uniform slate-grey colour, studded with the hæmorrhages already mentioned. The fluid expressed from these pieces was very dark.

"The air-cells, when examined with a lens, appear almost universally emphysematous, more especially those in the upper and anterior regions of the lungs, occupying a superficial position. Certain limited sections of the lungs, generally situated superficially, appear denser than others, the air-cells are visible but very small, and the amount of alveolar tissue in proportion to the air-space is abnormally great. This may be due, of course, either to collapse or to an increase of the fibrous elements in the walls of the air-cells. Several small cavities, the largest about the size of a pea, containing air were met with, probably large emphysematous cells, as they were quite devoid of any definite wall, and the air-vesicles opened directly into them. The tissues of the larger bronchi preserved their natural colouration, but as they reached their ultimate ramifications, when diminished to the size of a crow-quill, the mucous membrane became of a deep black colour, and the surrounding elements of the walls were very generally pigmented. The bronchi were filled with a frothy mucus, but the mucous membrane was not thickened, nor were there any evidences of chronic bronchitis. The *tunica adventitia* of the blood-vessels, large and small, was impregnated with the dark particles, and the transverse section of an artery presented three zones of colouration, a dark one corresponding to the *adventitia*, a white fibrous one to the *media*, while the red central zone occupying the *lumen* of the vessel was made up of the blood-corpuscles. The bronchial glands were firm, not enlarged, and presented an excessively black surface on section.

"Microscopical examination: first, of the dark coloured serum, which can be so readily expressed. A variety of cellular elements are here met with, and the colour is seen to depend upon black granules, partly free, and partly inclosed within the cells. A difference would seem to exist in this respect as to whether the drop examined was furnished by one of the darker spots, or from the intervening greyish portions; in the former case there are more free granules, in the latter they are generally inclosed within corpuscles. These carbonaceous particles range in size from almost imperceptible molecules up to portions measuring $\frac{1}{12000}$ of an inch and over. The latter are, as a rule, angular, and do not exhibit the Brownian movement. In addition, pieces are occasionally met with of an elongated form, and of a brownish-red colour at the edges, or, if thin enough, over the whole mass. The cellular elements found in the expressed serum may be arranged as follows:—

"1. Groups of flat cells, each with a distinct nucleus, the boundaries of the cells in many instances, being ill-defined, or sometimes similar cells are grouped together upon a portion of membrane. Free in the field are others identical with the individual ones composing the above groups. They are about the $\frac{1}{1200}$th of an inch in diameter, nucleus large and sharply marked, borders often indistinct, cell substance granular, friable, often broken away in part, leaving the nucleus exposed. The free nuclei of these cells also are present in numbers. Carbon granules are only occasionally met with in these corpuscles, and I think they must be regarded as the original cell elements of the alveoli, and perhaps, to a large extent derivatives of them in a slight catarrhal process.

"2. White blood corpuscles, distinguished from the former by their smaller size and less distinct nucleus. They only occasionally contain dark granules.

"3. Corpuscles in which the bulk of the carbon is contained, and upon whose presence the black colour of the expressed juice in most instances depends. These are very variable in size, and may, on the one hand, approach the colourless blood-corpuscles, and on the other, attain to five or six times their diameter. In shape they are usually round, sometimes oval, occasionally irregular, very rarely approaching the spindle form. Inside all of these the carbon particles exist in extraordinary numbers, filling the cells in different degrees. Some are so densely crowded, that not a trace of cell-substance can be detected; more commonly a rim of protoplasm remains free, or at a spot near the circumference, the nucleus, which in these cells is almost always eccentric, is seen uncovered. The contained carbon particles are for the most part angular, and when not too thickly massed together, a reddish-brown colour can be observed in each. In a few of them, comparatively coarse portions of coal are found imbedded, stretching the cells to their utmost limits.

"We come now to the examination of the lung substance itself, and first of the small dark areas. On teasing portions of these, unless done very finely no structure can be made out, uniformly dark masses present themselves. If, however, the elements are more minutely separated a dense interpenetration by small dark granules of all the textures is observed. We have not here to deal with cellular bodies containing the pigment, for it is free in the interstices of the tissue, and few or no cells can be detected. So thickly is the pigment scattered over the structures, that even an isolated fibril of elastic tissue is with difficulty seen, on account of the granules attached to it. The air-cells seem obliterated by the excessive accumulation of pigment and the great increase of the connective tissue, and hardly a trace of them is met with. As before mentioned, the fluid expressed from these parts contains only fine granules with an occasional cell. Thin sections show very well how intense the pigmentation is, but yield very little information as to its distribution, for a uniform black surface is presented, which only here and there in irregular spaces is penetrated by the light. Towards the borders, where the tissues are not so densely infiltrated, some of the carbon is seen to be contained within round corpuscles, and also confined in very irregular, somewhat spindle-shaped areas, but whether these latter are connective tissue corpuscles or not is difficult to decide. From their extreme irregularity and the number of their processes it is probable that they are not, but only represent the arrangement of the carbon granules among the elements of the tissue. All the coats of both bronchioles and vessels in these areas are impregnated in the same way, but I have not found any of the latter obstructed by accumulations of coal-dust.

"In passing to the consideration of the histology of the less pigmented and by far the largest section of the lungs, it may be mentioned that a considerable part of the colouration in this is due to carbon granules retained within the cells already described. These exist in abundance throughout the whole substance, and are everywhere present, both in sections and in teased preparations. They are found chiefly in the interstices of the stroma and along the course of the alveolar septa, occasionally, also, lying free in the air cells. Nothing further need be added to the description previously given of them.

"Secondly, isolated particles of carbon are tolerably numerous, even in situations which, under the microscope, look, on superficial examination, to be quite free. The membranous walls of the alveoli are constantly seen dotted over with black granules, though it is rare to see any occupying the cells upon them, and in the same way the interstices of the fibrous stroma contain them in abundance. A third situation is the point of junction of the fibrous septa, where, in many instances, quite a dense accumulation is met with in the form of fine granules. A fourth and most favourite locality is the interlobular connective tissue, which cannot be considered apart from that of the vessels and bronchi. Here, as can be seen with the naked eye, the deposit is excessive, and the blood-vessels are readily followed as dark, irregular branching lines. The examination of sections of vessels show that in most instances the *adventitia* alone is affected, while the *media* and *intima* remain quite normal. Similarly it is only the loose fibrous coat of the bronchi in which the pigment occurs, though occasionally a transverse section of a bronchiole is seen pigmented throughout.

"With regard to the alveoli themselves no very great deviation from the normal structure was noticed, save that in many places an increase in cellular elements, the result of a catarrhal process, had taken place on the membranous wall. In some situations, also, a marked thickening of the alveolar septa had occurred, which was perceptible to the naked eye, and has been already referred to in the description of certain areas in which the air-cells were much diminished in volume. This was rendered very evident by comparing specimens taken from these areas with others from a healthy lung, or even from more natural sections of the same one. In one or two localities, isolated air-cells, or small groups, were found filled with colourless tenacious plugs (very similar to those of croupous pneumonia), consisting of an extremely delicate fibrillar network enclosing various cellular structures. The large ones, filled with carbon granules, in some instances gave a dark tint to these small masses.

"The most superficial layer of the pleura, composed of a fibrillar membrane upon which the pavement epithelium lies, can be stripped off as a clear transparent structure quite devoid of pigment. Immediately beneath this, however, there is a fibrous layer densely crowded with carbon granules, both free in the tissues and contained in the large round cells, which latter are very abundant in this situation. Oddly enough, in teased portions from this sub-pleural region some of the coarsest particles of carbon were obtained.

"Portions of dotted ducts and scalariform tissue were found in teased preparations."

Another specimen, obtained some years ago by Dr. Howard, of Montreal, from a Cornish miner, was also described by Dr. Osler.

The following conclusions were arrived at:—

"1. The histological examination of these two specimens of miner's lung favours the view that in the early stage the process is confined to an increase in the fibrous elements about the bronchioles and vessels, and in certain emphysematous areas—a genuine cirrhosis, or, as some would prefer to call it, an interstitial pneumonia.

"2. A considerable proportion of the carbon is contained in large cellular elements, which are specially abundant in the less pigmented healthy portions, and in these it probably remains without much injury to the lung-parenchyma. Another large part of the pigment lies free among the elements of the tissues, this being specially the case in the indurated spots, in the thickened pleura, and at the junction of the alveolar septa.

"3. The extraneous origin of the carbon is proved by the detection in the lung of portions of fossilised vegetable tissue in the form of scalariform and dotted ducts."

NEW ZEALAND.

Report by Dr. W. J. Spencer (of Napier), for Dr. W. G. Kemp (of Wellington.)

During the last few years New Zealand has attracted considerable attention in Europe as a resort for pulmonary invalids; and, undoubtedly, with regard to its magnificent climate, its beautiful scenery, the peculiarities of its fauna and flora, its wonderful sulphur springs and hot lakes, with their marbled silica terraces, it is a country well worth the consideration of the tourist, whether his object be the pursuit of pleasure or of health.*

Personal observation, however, during the last fourteen years, has led me to the conclusion that a certain amount of misapprehension exists in Europe, not only as to the geography of the country, but also as to the nature of the climate. The general idea seems to be, that all parts of New Zealand are equally suitable for people suffering from chest affections. A more erroneous idea could not exist. Some months ago I met a phthisical patient who had been recommended "to make a voyage to New Zealand." The unfortunate man landed at Otago; he had much better have remained at home. The fact is, there is almost as much difference between the extreme north and south of New Zealand, in climate, as there is between the extremes of Great Britain; and the climate of Southland will no more bear comparison with that of the Bay of Islands than the climate of the north of Scotland will with that of Devonshire.

Without considering the climatic peculiarities of New Zealand as a whole, I will endeavour, as succinctly as possible, to give a sketch of that part with which I am most acquainted, merely premising that I believe it to be the best adapted of any place in the country to the requirements of the pulmonary invalid.

Napier is a small island on the east coast of the province of Hawkes Bay, situate between the 39th and 40th parallel of south latitude. It is about three miles from the mainland, from which it is separated by a large tidal harbour, through which the Tutae Kuri river, a small mountain stream, empties itself into the sea. From opposite ends of the island run two shingle spits, each about five miles in length, enclosing the harbour, and connected with the mainland, except at the point where the stream mentioned above opens through into the bay. The island of Napier is about one mile and a-half in length, by rather less than one in breadth; its height varies from 200 to 300 feet, the sides being mostly precipitous; it is intersected by numerous ravines, the slopes of which have been utilised for the construction of roads. The soil is a post-tertiary marl, varying from pure chalk in some places to pure clay in others, covered by a thin layer of loam. The town, where the business is carried on, is situated on a low-lying flat, for the most part reclaimed from the sea. The water-supply, for the town at least, is from artesian wells; it is of good quality, pleasant and wholesome. On rising to the surface its temperature is about 60° Fahr. Speaking of the climate of New Zealand, generally, Dr. Hector, (quoted in Vol. vii., "Transactions of New Zealand Inst."), says, "The changes of weather and temperature are very sudden; calms and gales, rain and sunshine, heat and cold often alternating so frequently and suddenly as to defy previous calculation, so that there cannot be said to be any uniformly wet or dry season in the year. But although these changes are sudden and frequent, they are confined within very narrow limits, the extreme of daily temperature only varying throughout the year by an average of twenty degrees, whilst in Europe (at Rome and at other places of corresponding latitude with New Zealand) the same variation amounts to or exceeds thirty degrees. In respect to temperature New Zealand may be compared either with England or with Italy, but London is seven degrees colder than the north, and four degrees colder than the south island of New Zealand, and is less moist. The mean annual temperature of the north island is 57°, and of the south island 52°; that of London and New York being 51°, whilst at Edinburgh it is only 47°; the heat in summer is tempered by the almost continual breezes, and the winter cold is not nearly so severe as at any of the above-mentioned places, except in the uplands and extreme south."

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* For further accounts of the Topography, Climate and Diseases, etc., etc., of New Zealand, see "Dr. Dobell's Reports on the Progress of Medicine," Vol. I., 1869, Vol. II., 1870.

In Napier the climate varies much with the time of year. In summer (December, January and February) it is hot, dry and relaxing, with frequent hot winds; in winter (June, July and August) wet, often with cold damp winds. Spring (September, October and November), and Autumn (March, April and May), are by far the most enjoyable seasons, although the changes of temperature are more sudden, and more considerable than at the solstitial periods.

The figures in the following meteorological statement are copied from the "Transactions of the New Zealand Institute" for 1875, and refer to the previous year. Temperature. Mean in shade 58°, mean daily range 18·2°, extreme range, 59°. The seasonal means are, spring 57·4°, summer 66·4°, autumn 58·8°, winter 49·6°. The mean difference of temperature between summer and winter is therefore 16·8°. The mean reading of the barometer for the year was 29·9.

Mean elastic force of vapour ·377, mean moisture 77. Total rain fall 37·9 inches; rainy days 147 (average of previous six years being 93). The wind appears to have blown on 360 days at an average velocity of 214 miles per diem.

Some idea of the equability of the climate may perhaps be afforded by the statement that during the winter the scarlet geranium remains in flower, and that the weeping willow is almost evergreen, being out of leaf rarely more than four or five weeks. On the other hand, although the orange tree flourishes well, the summer heat is not sufficient to ripen its fruit.

During the summer months (from Christmas to the end of February) the sun's power is very great; and as the roads are paved with a chalky limestone, from which a considerable proportion is reflected, the glare and heat are at times intense. During this period also, hot winds (temperature 80° to 90° Fahr.), ranging from N.E. to N.W., prevail, and render the place very relaxing. During spring and autumn, although the diurnal variations of temperature are rather greater than at other seasons, the average climate is most enjoyable; the brightness of the sky, the transparency of the atmosphere, the moderateness of the heat, and the lightness and elasticity of the air, render the simple act of living and breathing a perfect enjoyment. In winter, rain is frequent, and is occasionally accompanied by S. and S.E. winds; at which times, although the thermometer may not fall below 40° or even 50° Fahr., the feeling of cold is considerable—not being the dry exhilarating cold of frost, but the shivering damp sensation of a sudden thaw. Two or three times during the winter, ice the thickness of a penny piece may be found in the early morning; it always disappears by 10 or 11 o'clock; and snow has never been seen on the ground, so far as I am aware.

Effect of the Climate on Residents.—The Maories are fast dying out from pulmonary consumption; no Maories, however, live in Napier; and even, with reference to the country generally, the fact can scarcely be referred to climatic influence, but rather to intermarriage, to insufficient clothing, non-nutritious food, and deficient shelter. Three years ago, in a charitable institution for Maori girls, out of a total of twenty-six inmates, five died of phthisis; in consequence of which mortality I was requested to examine into the hygienic condition of the establishment. The result of my recommendation was, that the hours of work were halved, the work-room doubled in dimensions, and the beds in the dormitories thinned. I also insisted on the children all wearing flannel next the skin. From that time down to the present, no fresh case of phthisis has occurred. Amongst the white population, both resident and newly arrived, the general amount of sickness is small. A certain amount of diarrhœa prevails among the immigrants soon after landing, but it is attributable to change of diet, to the fact that they frequently show signs of scurvy, and to the miserable accommodation afforded them at the immigration barracks. The cases are almost invariably trivial. During the earlier months of 1875, typhoid fever was almost universal; but its introduction by an emigrant ship, and its progress from one dirty place to another were so distinctly traced that there can be no doubt as to its cause. So far as I could ascertain, the mortality was about six per cent., and most of the victims were new arrivals, many of whom had already exhibited scorbutic symptoms. The epidemic suddenly disappeared on the occurrence of some days of heavy rain, and there have been no cases since.

The most common affections are the so-called muscular rheumatism, lumbago, &c. (acute articular rheumatism is very rare), neuralgia, and atonic dyspepsia—the last being due in most cases, I believe, to excessive smoking and indulgence in strong tea at every meal, and oftentimes between meals. The nervous symptoms which accompany it—violent palpitation, intercostal neuralgia, and indefinable terror—are often most distressing. When once the vicious habits in smoking and diet are corrected the cure is almost spontaneous.

In the height of summer, in hot dry seasons only, a good deal of infant mortality occurs from diarrhœa and dysentery—principally among children brought up by hand or bottle. Doubtless the heat has some influence, but I am inclined to believe the state of health of the cows is the prime cause. At this time—Jan. and Feb.—the pasture dries up, and the cattle suffer from a fatal disease, popularly called "staggers," though it seems more like heat-apoplexy, and their milk produces severe and often fatal diarrhœa.

Tubercular diseases amongst the residents are rare. One cause of this is undoubtedly that, during a considerable portion of the year, the climate invites them to spend the whole day out of doors, and the occupations of the greater portion of the population compel them to do the same. Pleuritis and Pneumonia are almost curiosities, so rare are they. Bronchitis is not uncommon in spring, but the cases are mostly mild.

In estimating the advantages of the climate of Napier for the actually phthisical patient, it is to be remembered that it is, during summer at least, very relaxing, and therefore apt to produce an amount of enervation in constitutions which require bracing. It is, however, just at this time of year that the invalid may live at almost any part of the North Island, and that the weather is most favourable for travelling to the interior, the hot springs, &c. In the earlier stages of pulmonary tuberculosis, that is, whilst the patient has still the ability to take exercise—walking, riding, or driving—the climate seems particularly favourable, as he may spend his days and often the greater portion of his nights in the open air with impunity. In that stage of the disease in which the elimination of tubercle is going on, I imagine that the influence of the heat and general relaxation is to promote the occurrence of hæmoptysis, at all events it appears to me that bleeding from the lungs is of unusually frequent occurrence, and I see no other way of satisfactorily accounting for it.

In 1870, a young lady was sent here from Otago as an only resource against phthisis. There was troublesome cough, and some falling off in general condition. The lungs were apparently sound, with the exception of a small, circumscribed solidification at the right apex. Cod liver oil and a sedative soon relieved the cough; she is now strong, healthy, and active, in good condition, and can ride 40 miles a day. The lung is in *statu quo*, the solid nodule still there, it has neither increased nor diminished, and there has been no attempt at elimination.

M., ætat. 26, arrived here from Melbourne, three months ago; dates his ailment from a cold he had ten months since; was somewhat emaciated; had profuse nocturnal perspirations; bad appetite, and severe cough, with copious expectoration. Left lung was a honeycomb of cavities; right lung, upper portion consolidated, but from second intercostal space downwards appeared to be working healthily. After three months' residence here, the present report is—General strength improved; appetite good; has made flesh; perspirations ceased; cough still troublesome, but amount of expectoration somewhat diminished; spends the greater portion of the day out of doors, although it is midwinter; no extension of solidity in right lung, and no sign of excavation.

Cardiac affections, valvular diseases and hypertrophy, and intrathoracic aneurism are by no means uncommon; probably the climate has less to do with their production than the vicious habits of the country residents, hard work, inadequate shelter and food, combined with eternal smoking and tea-drinking.

The general conclusions which I would draw are—That the climate of Napier is semi-tropical and insular. That it is peculiarly adapted to the earlier stages of pulmonary consumption, except in cases for which a bracing climate is strongly indicated. That during the summer months (January and February) it is very relaxing, and that at this time the patient should seek some slightly cooler place. That although diseases of the heart and great vessels are not uncommon, there is no evidence that they are either produced or aggravated by the climate.

NOTE.—The Professor of Anatomy at Dunedin is endeavouring to form a general medical association for New Zealand with branch societies in the large towns. His idea also includes the establishment of a journal of medical science. So far, his project appears to have met with general approval in the profession, and he is sanguine of ultimate success.

UNITED STATES OF AMERICA.

Report by CHARLES MEYMOTT TIDY, M.B., &c., &c., (Assistant Editor).

Pulmonary Consumption.—Professor Austin Flint, in a series of clinical studies of "phthisis," presents us with the experience derived from an examination of 670 cases.

I. He deals *first* with the *Morbid Anatomy* of Phthisis. It is essentially a bilateral disease; that is, *both* lungs are usually affected, but they are not symmetrically affected, *i.e.*, not affected to the same extent. In this matter, however, one lung, he considers, has no special immunity over the other. But, as regards the lung itself, the disease is either limited to the upper lobes entirely or chiefly. The author has only found three exceptions to what he regards as a law, viz., that the primary seat of the disease is at or near the apex of the lung, and that the disease advances from above downwards.

In 78 cases he found cavities in 62, and no cavities in 16. Five of these 16 cases where there were no cavities, were cases of *acute miliary tuberculosis*, that is, according to Dr. Flint, the presence in the lungs as well as in other organs (spleen, liver, &c.), of either grey granulations or of miliary tubercles (the latter name being applied after they have undergone a granulo-fatty metamorphosis).

The author deals with the relationship between, and the relative importance, when co-existing, of, miliary tubercles and the exudation known as tubercular infiltration. From a consideration of 26 cases, excluding those, on the one hand, of acute tuberculosis, and, on the other hand, where lung perforation had occurred, he concludes that in 14 cases the presence of the miliary tubercles was a very important element; and that in 12 cases they were comparatively very unimportant. He therefore disagrees with Niemeyer, who says "*that the greatest danger for the majority of consumptives is, that they are apt to become tuberculous,*" or in other words, the danger is, that they become the subjects of granulations or miliary tubercles. The greatest danger is, Dr. Flint contends, pulmonary injury, from whatever cause.

In 12 out of 84 cases there was *lung perforation* giving rise to pleurisy and pneumo-thorax. The author points out, however, that this is not to be regarded as the proportion in which perforation is to be expected. It occurred equally in both lungs, always from without inwards, and but once only in the lower lobes. He notes in these cases two facts of importance:—

a. The frequency with which emphysematous portions of lungs were formed between phthisical nodules.

b. The infrequency of lobar emphysema with phthisis. Emphysema, in fact, is, in Dr. Flint's opinion, a protective against phthisis.

In only 4 cases where post-mortems were conducted were pleuritic adhesions found to be absent. Pleurisy, therefore, as an effect of phthisis, is almost invariable.

In a large number of cases, *interstitial pneumonia* and *enlarged bronchial glands* (firm or cheesy) were noted. *Pulmonary apoplexy* is recorded in one case only; and so also *pulmonary gangrene*.

Lesions of the heart were noted in comparatively few cases. In 5 cases there was enlargement of the heart; and in 1 case a diminution in size. Fatty degeneration was noted in 2 cases.

Intestinal ulceration was noted in 11 cases, and generally in the lower part of the small intestine.

Fatty liver was noted in 7 cases. *Recent diffuse peritonitis* in 2 cases. *The kidneys* were found normal in 6 cases out of 13. *Obstruction of the iliac veins from thrombosis* was noted in 1 case.

In only 1 case was tuberculous disease of the brain found.

II. He deals with the *Etiology* of Phthisis—

a. *Age* (noted in 584 cases). One case only occurred under ten; one-half the cases occurred between the ages of twenty and thirty. The age of the oldest was seventy-eight, but there were several cases of patients over sixty; few females suffered over fifty years of age.

b. *Sex* (noted in 669 cases). Males are more liable than females to phthisis, in the rates of three to one, or as 505 to 164.

c. *Occupation* (noted in 218 cases.) Of cases occurring in private practice, clerks stand first (32 cases), then physicians (30 cases), then merchants, then lawyers, then farmers. Of hospital cases, labourers stand first, then seamen, then clerks. One-sixth of the whole 218 cases attended in hospitals and privately, occurred in clerks or book-keepers, and this is not difficult to explain for hygienic reasons. In only 2 cases did phthisis occur in men engaged in trades which involved the inhalation of irritant particles. Dr. Flint concludes that occupation, so far as it involves confinement within doors, has an important influence in the etiology of phthisis.

d. *Antecedent Diseases*—

1. *Pleurisy*.—This occurred prior to the development of the tuberculous affection (tested by the *persistent* cough) in 22 cases only out of several hundred cases recorded. Dr. Flint believes pleurisy rarely precedes, and is certainly not a cause of phthisis.

2. *Pneumonia*.—Occurred antecedent to phthisis in only 9 cases. The danger, in Dr. Flint's opinion, of acute lobar pneumonia being followed by phthisis is very small.

3. *Bronchitis.*—This, Dr. Flint believes, has in no respect a causative influence. In but one case only was there evidence to prove that bronchitis existed as an antecedent affection.

4. *Hæmoptysis.*—This occurred prior to a persistent cough in 61 cases. Dr. Flint regards it as an undoubted forerunner, although the advent of the phthisis may be slow. In this his results clearly agree with those of Dr. Ware. But the existence of the interval which often occurs, Dr. Flint regards as evidence that hæmoptysis is not to be regarded as a *cause* of phthisis, whilst it may be a *substitute* for phthisis. Further, he does not consider the after development of the disease due to the hæmoptysis, but that the hæmorrhage is incidental to the tuberculous affection.

Other diseases are mentioned; we need only refer to *malaria*, which, in Dr. Flint's experience, somewhat frequently precedes phthisis.

e. Pregnancy and Lactation.—Pregnancy, Dr. Flint thinks, either directly or indirectly, has a considerable influence in favouring the *actual commencement* of the disease. In this he guards himself against asserting its influence in hastening its progress.

f. Hereditary Tendency.—Of course the influence of this is certain; but, as Dr. Flint remarks, it is important to note that phthisis is developed in many cases where there is little or no evidence of an innate diathesis, and the evidence of a family tendency is not to be regarded as proof that the whole family are doomed.

III. Dr. Flint next describes *the Symptomatic Events and Complications of Phthisis.*—Hæmoptysis (bronchorrhagia), however antecedent to the phthisis (and he has known it to be sixteen years antecedent), Dr. Flint considers is closely connected pathologically with the phthisical affection. The immediate cause of the hæmorrhage in such cases is, he believes, *local*, and not a mere bloodchange—perhaps it is, as he expresses it, a small affection, at once ceasing, or as it were aborting. Hæmoptysis is an active hyperæmic condition, not due to venous obstruction but to an undue determination of blood to the congested portion of the mucous membrane. The answer to, Why tubercles lead to hæmorrhage? is twofold. *First*, that the primary seat of tubercle is the small arteries; hence a weakening of the coats, and consequent rupture. *Secondly*, that occlusion of the small vessels occurs as the result of tubercle, and rupture from pressure of blood in the proximate unobstructed arteries.

Dr. Flint's conclusions on this point are thus stated:—

1. Hæmoptysis or hæmorrhage limited to the bronchial mucous membrane, and not dependent on disease of the heart, or on an injury of the chest, is always presumptive evidence of existing pulmonary disease.

2. With the foregoing qualifications, the occurrence of bronchial hæmorrhage, if there be no other evidence of existing pulmonary dis-

ease, renders it extremely probable that, sooner or later, phthisis will become declared.

3. In most cases, at the time the hæmoptysis occurs, the physical signs of pulmonary disease are to be discovered by the careful and skilful employment of auscultation and percussion.

4. Hæmoptysis occurs in some cases when not only the symptoms of pulmonary disease are wanting, but the results of physical explorations of the chest are negative. In a certain proportion of these cases it is probable that the hæmorrhage is connected with a small affection which is latent as regards both symptomatic phenomena and physical signs.

5. In view of the foregoing propositions prudence dictates, that in the cases in which hæmoptysis is the only evidence of pulmonary disease, it is wise to act as if phthisis either exists, or is impending.

6. Bronchial hæmorrhage in some cases occurs, and it may recur frequently and persistently for a long period, without any apparent pathological connection with phthisis.

7. The pathological condition standing in immediate causative relation to bronchial hæmorrhage is a hyperæmia, or congestion, limited to a section of the mucous membrane.

8. Whenever, as is true in the majority of cases, this local congestion has some pathological connection with phthisis, it is probable that the latter is the primary morbid condition, the hæmorrhage being incidental to it.

Dr. Flint points out that, in *advanced* phthisis, hæmoptysis usually occurs from bands of pulmonary tissue traversing tuberculous cavities becoming ruptured (cavernous hæmorrhage), and is rarely bronchial; whereas in *early* phthisis the hæmorrhage is generally bronchial. Death is rare from bronchial hæmorrhage, and if it occurs it arises from suffocation or syncope, while it is comparatively common from cavernous hæmorrhage. The after effects of bronchial hæmorrhage are usually slight, whilst of cavernous, they are severe. The importance of bronchial hæmorrhage varies. *In a few cases* it has no marked effect either good or bad on the patient, but denotes simply the development of a morbid condition which speedily destroys life. But *as a rule* its occurrence is not unfavourable, and Dr. Flint concludes by stating that hæmoptysis has no marked apparent influence on the duration of phthisis in those cases which prove fatal within a period of five years. Death from loss of blood is rare, whilst the chances of recovery or arrest with hæmoptysis, are greater than without hæmoptysis. As regards the treatment of hæmoptysis, Dr. Flint thinks patients are usually over careful to avoid physical exertion. He refers to the remarkable power of ligatures placed on the four extremities in stopping pulmonary hæmorrhage.

Diarrhœa is neither a very frequent nor a very infrequent symptom.

Of 31 cases in which it was noted, there were post-mortems in 10, and in 9 of these intestinal ulceration existed, this occurring most often in the ileum. In 2 cases ulcers were found in the large as well as in the small intestines. In 1 case of diarrhœa the dejections contained liquid fat, and in this case pancreatic emulsion was given with great benefit.

Dr. Flint's conclusions respecting diarrhœa are thus stated :—

1. Diarrhœa, when prominent and persistent in phthisis, denotes as a rule ulceration in the small intestine with enlargement of the mesenteric glands.

2. The prominence of this symptom is not always a criterion of the amount of ulceration.

3. Perforation of intestine is an occasional accident in connection with intestinal ulceration.

4. Cases of phthisis in which diarrhœa represents intestinal ulceration offer very little if any ground of hope of recovery. It is doubtful if cicatrization of the ulcers ever take place.

5. Diarrhœa in some cases ceases for a time notwithstanding the existence of ulceration.

6. The average duration of phthisis with diarrhœa is considerably shorter than the average duration of the disease in an indiscriminate collection of cases.

7. In some of the cases that are characterised by the prominence and persistence of diarrhœa, death takes place with a very small amount of pulmonary disease, and under these circumstances, death may occur without the formation of cavities in the lungs.

8. Hæmorrhage incidental to intestinal ulceration may occur, and the loss of blood be the immediate cause of death.

Laryngitis was noted in sixty-one cases, of which by far the larger number were males. The laryngeal affection he regards as dependent or secondary to the pulmonary. It does not shorten the disease or destroy the chances of recovery unless it interferes with alimentation.

Pneumonia is an occasional complication, but in Dr. Flint's opinion when it occurs the phthisis has nothing to do with causing it, nor does the existence of the phthisis interfere with the patient recovering from the pneumonia.

Pleurisy, if unilateral, does not hasten the disease; whilst on the other hand it may occasionally retard or even arrest its progress. Twenty-four cases of *lung perforation* followed by pleurisy are noted. *Pulmonary calculi* in one case were expectorated in large quantities.

As regards *perinæal fistula*, Dr. Flint does not consider its occurrence in phthisis unfavourable, nor the attempt at cure by surgical means advisable.

Pregnancy in phthisical patients consecutive to the disease is not common. Notes are given of nine cases.

IV. As regards *Fatality and Prognosis*, Dr. Flint quotes numerous cases, and notes that in 670 cases, 44 recovered, that is about 1 in 16. In one-seventh of the recoveries the disease recurred in from 1½ to 6 years. When it recurs under such circumstances it is invariably fatal. In 75 cases the author has known an arrest of the disease (*i.e.* non-progressive phthisis) with or without complete recovery. As regards prognosis, family pre-disposition is not of much importance, whilst Dr. Flint regards " a determination on the part of the patient to get better " as of primary importance.

Summing up the facts relating to prognosis, Dr. Flint concludes :—

1. The probability of recovery from phthisis is much greater, other things being equal, in proportion to the small amount of pulmonary disease, although recovery may occur in advanced and extensive disease.

2. Age and sex have no special importance in the prognosis.

3. Family pre-disposition affects neither favourably nor unfavourably the probability of recovery from the arrest, or the progress of the disease.

4. Hæmoptysis, even when repeated and profuse, is not an unfavourable symptom, but rather otherwise.

5. *Chronic Laryngitis* is not unfavourable either as regards progress or recovery.

6. The same is also true of *pleurisy*, whether antecedent to or accompanying the phthisis.

7. The same is also true of *perinæal fistula*.

8. It is an essential element of a favourable prognosis that the appetite, digestion and nutrition be not greatly impaired. The probability of either recovery, arrest, or slowness of progress is great, other things being equal, in proportion as these functions, together with symptoms relating to the circulation, temperature, etc., denote tolerance of the pulmonary disease. A determination to overcome the disease and perseverance in efforts for this end constitute important elements in a favourable prognosis.

9. Phthisis recurring after recovery or arrest, is likely to prove fatal. There are, however, exceptions to this rule, and recovery may take place after a second recurrence.

10. Inasmuch as the menses, having been suppressed during the existence of phthisis, return after recovery or arrest, their suppression does not necessarily involve an unfavourable prognosis.

As regards the period of death we again quote Dr. Flint's conclusions :—

1. Fatal cases are oftener of short duration in women than they are in men.

2. Various occupations appear to have little or no influence in prolonging or shortening the duration of phthisis.

3. Phthisis occurring in patients over thirty, is more likely to be of short duration than if it occurs in patients under thirty.

4. Death after a short duration, is as common in those that are intemperate as regards alcoholic stimulants as in the temperate.

5. In a certain proportion of the cases of phthisis, the short duration and the causes determining death, relate to important complications, such as pleurisy with effusion, pneumonia, peritonitis, meningitis, and intestinal disease.

6. Phthisis developed during pregnancy is generally rapidly fatal.

7. Death after a short duration in certain cases of phthisis is due to pathological conditions which are either coincident with, or directly follow, profuse bronchial hæmorrhage.

8. In a certain proportion of fatal cases of phthisis having a short duration, death is attributable to the amount of pulmonary affection, and the rapidity of the phthisical processes (galloping consumption.)

9. There are reasons to believe that in rare instances rapid death is due to acute tuberculosis (*i.e.* rapid production of miliary tubercles) being superadded to the chronic affection.

10. The duration in fatal cases of phthisis is diminished by an unusual intensity of constitutional disturbance, as denoted especially by a high temperature of the body and frequency of the heart's action, and it is also diminished by defective alimentation from notable impairment of appetite and digestion.

V. Respecting the *Treatment* in cases of *Acute Miliary Phthisis* it is simply palliative. As regards *Fibroid Phthisis*, a favourable termination is not likely; hence a palliative treatment is about all that is possible here. In the ordinary form of phthisis, where intravesicular exudation ending in cheesy degeneration and cavities occurs, death is the most common end; but a favourable termination, independent of any special medical treatment, is not infrequent; in other words, the phthisis recovers of its own accord. Of 44 cases of recovery: in 8 there was no treatment medicinal or hygienic, and in 15 there was hygienic treatment only. *Cod Liver Oil* was given in 84 cases: 6 recovered, in 10 the disease was arrested, in 1 the disease was progressive, 23 were fatal; in 44 the histories were defective. The *hypophosphites* were given in 16 cases: 2 recovered, in 1 the disease was arrested, and 3 were fatal; in 10 the histories were defective.

The free administration of *Alcohol* was tried in 15 cases: 2 recovered, in 3 the disease was arrested, in 2 the disease was progressive, 3 were fatal; in 5 the histories were defective. One case is recorded where *pancreatic emulsion* was used, in which the diarrhœa had been severe, the dejections containing floating fat. The case was much relieved by the emulsion, but the patient died. Dr. Flint is of opinion that it may be more useful than pure fat or oil, as well as being better tolerated. He has known cases where it has proved useful.

Of *Hygienic Treatment*, that a temporary change of climate has a favourable influence, facts conclusively show. The advantage of *change of habits* (that is from indoor to outdoor work), *change of residence* from city to country, or from one country to another country, are illustrated by cases. Dr. Flint sums up the facts of hygienic treatment, as follows :—

1. Benefit was derived in many cases from change of climate, the benefit seeming to depend however more on incidental circumstances than on any special climatic agency.

2. Change of habits, *i.e.* from indoor to outdoor work, or from sedentary to active occupation, is of all hygienic measures, the most important.

3. In certain cases a permanent change of residence is beneficial, but the benefit will depend on accessory circumstances.

4. Sea voyages are often of great service, but here again their benefit depends on accessory circumstances.

As regards *Diet*, Dr. Flint recommends that the appetite and taste of the patient should suggest the food, so long as it be wholesome. Let the experience moreover of the patient guide the physician as to the quality and quantity of alcohol advisable. Medicine to increase appetite, and hygienic measures for the same object, must be used if needful. This is the sum and substance of Dr. Flint's suggestions on diet in phthisis. *Moderate* gymnastic exercises, out of door exercise (the fear of "catching cold" being, as a rule, greatly over-estimated), a daily sponging the body, and this followed by friction, the avoidance of too much or too little clothing, are important considerations.

With respect to *climate*, Dr. Flint believes, as we have mentioned, far more in the change, and in the circumstances incidental to the change, than in the climate. If being at home means being in-doors and the climate inclement, a change is very important; if going away means distress, because of separation from friends, the patient had better stop at home. If he determines to go, let a salubrious climate be chosen; but the climate itself is, Dr. Flint considers, a secondary consideration. A patient must not be sent from luxuries to "rough it," or from a lively town to "a dull place," or from an active business life to "an invalid watering-place." Sea-voyages Dr. Flint regards favourably, so long as grief of separation does not effect more harm than the sea-voyage can work good.

The influence of *marriage* on phthisis is discussed by Dr. Flint. *The effect on the patient* is not unfavourable. *The effect on the offspring* is unfavourable. *As regards transmission* from husband to wife, or from wife to husband, Dr. Flint considers he has no facts to prove that the communicability of phthisis is even possible.

Dr. Flint concludes with a short chapter on physical signs and diagnosis, noting the important fact that, in cases of ordinary phthisis, as well as in fibroid phthisis, we should examine the *lower* lobes of the lungs as well as the upper, otherwise the disease may be overlooked, inasmuch as exceptional cases occur where phthisis occurs primarily in these parts.

Laryngeal and Tracheal Ulceration in Phthisis.—Dr. Bertolet read a paper before the Pathological Society of Philadelphia, "On Ulcerations of the Laryngeal and Tracheal Mucous Membranes, frequently marking the termination of Pulmonary Phthisis." He admits that post-mortem and laryngoscopic examinations have undoubtedly shown that cases formerly known as "laryngeal phthisis" have very frequently but little connection with "tuberculosis," although in this he thinks too much has been proved, the broken-down debris of tubercle easily escaping detection, and thereby leading to an erroneous conclusion that it is absent. Hence two schools of teaching on this subject have arisen—(1) The first assert that *tubercle does not occur in laryngeal ulcerations* (laryngeal phthisis)—(Rühle, Türck, Rindfleisch.) (2) The second, including Virchow and Rokitanski, teach *that the lesions in question are decidedly tuberculous.* Dr. Bertolet admits that many cases called laryngeal phthisis are simply catarrhal ulcerations; but in proof that this is not necessarily the case, he brought before the Pathological Society three specimens, all taken from well-marked cases of tuberculosis, showing the presence of miliary tubercles in those parts of the mucous membrane where the mucous glands and their ducts remain unaffected. The history of one case is given at length, to show the rapidity of the development of these ulcerations, and in proof of the process being tubercular and not merely follicular. Dr. Bertolet holds that the presence of the tubercle in the trachea and larynx is the result of local inoculation, and he remarks that, in his experience, where the tubercular and not the catarrhal process predominates, the mucous membrane covering the sharp projecting edges of the tracheal rings and vocal cords is specially liable to be in the first instance affected. —("Philadelphia Med. Times," June 19, 1875.)

Dr. Louis Starr records a case of *Tuberculous Laryngitis* in a male aged 27. The case was well marked so far as the general symptoms and postmortem appearances of tubercular disease of the lungs were concerned. Respirations 48: voice hoarse; violent paroxysms of coughing; no cardiac murmur. The laryngoscopic examination did not prove satisfactory because of the patient's weakness and the great irritability of the throat. The only view obtained was of the epiglottis and false vocal cords. The former was partly hidden by a layer of mucus, and the latter appeared to be congested and thickened.

The results of the post-mortem are as follows :—

The upper lobe of the left lung was firmly adherent to the chest-wall, and contained a cavity about as large as a hen's egg, lined by a thick, smooth membrane, and partly filled with purulent fluid; the remainder of the lobe was infiltrated by a caseous material, which had commenced to soften, and broke down readily under the finger. Throughout the lower lobe several small collections of tubercle were scattered. The apex of the right lung was occupied by a tuberculous deposit, the rest of the lung being healthy. The heart was small and somewhat fatty, but all the valves were normal. On removing the larynx, what was left of the epiglottis, viz., the lower two-thirds, presented a peculiar worm-eaten appearance, due to the existence of deep ulcers with irregular edges. These were most numerous on the laryngeal surface. The upper margin of the epiglottis was thin and very ragged; in its centre there was a perforation, and on either side of this the tissue-destruction had been so great as almost to separate the middle from the lower third of the cartilage. The mucous membrane lining the interior of the larynx was thickened and ulcerated; the ulcers were situated one on the right vocal cord, another in the thyroid angle and on the right side of the thyroid cartilage, and a third in the inter-arytenoid space. There was also partial ossification of the cricoid cartilage.

The remarkable point seems to be the entire escape of the vocal cords and the arytenoid cartilages, which are commonly involved. There was no history of syphilis.—("Philadelphia Med. Times," Dec. 25, 1875.)

Abscess in the lung supposed to empty itself through the chest-wall.—In the New York Med. Jour., Vol. xxiii., No. 1, p. 63, is recorded a case of "a man, aged 33, who had a perforation of the chest-wall, in connection with a large phthisical cavity. At first, it would seem as if there had been an empyema, but no history of such can be obtained; and, moreover, the place of perforation would not accord with that view of the case. The point of perforation is beneath the clavicle, and about two inches from the sternum. It is readily detected by causing the patient to expire forcibly, when air and fluid make their way out beneath the skin. It seems as if an effort was being made by Nature to allow of the cavity emptying itself, as if it were an abscess. The liver of this patient has undergone extensive amyloid degeneration. It extends down to within an inch of the umbilicus, and across to a point three inches to the left of the median line."

Statistics of Phthisis in the United States.—Dr. Gleitsmann, of Baltimore, has published some statistics of mortality from phthisis, gathered from 65 cities in the United States during the year 1873. The tables show that 12·97 per cent. of the total deaths are registered as occurring from phthisis. The death-rate (from all causes) of all the cities from which statistics were obtained, was 22·47.

England shows a larger total death-rate than this, but a smaller death rate from phthisis.

Deaths from phthisis are more numerous in the spring than in the winter by nearly 2·5 per cent. Summer is the most favourable time, but there is only a difference of 1 per cent. between it and autumn.

March is the most fatal month, then January, May, April, February, December. The most favourable months are August, June and September.

Thoracic disease in Tennessee.—In a letter from Tennessee, Dr. Bailey says:—"Acute thoracic affections often occur in the cooler months, but consumption cannot be considered common. Indeed, tubercular phthisis is rather rarely met with among the native white population. There are very many people now resident in this region who came from the North to escape threatening lung-affections, and are in good health. Asthma is almost invariably relieved upon the sufferer's arrival, and generally cured after a short residence. There are many evidences of this fact to be met with in and about Knoxville. Nasal catarrh is also much relieved, if not cured, after a short time; many persons have come here from the Atlantic coast and the Lake region with satisfactory results."

Many blacks die from what is known in the South as "nigger consumption," which is more strictly a rapid disintegration of lung-tissue following pneumonia, and involving the lower lobes rather than the upper.—("Boston Med. and Surg. Journ.," Feb. 10, 1876.)

Cheyne-Stokes' Respiration in Tubercular Meningitis.—Dr. Pepper, Professor of Clinical Medicine in the University of Pennsylvania, contributes a paper on the characteristics and diagnostic value of the Cheyne-Stokes respiration, which he thus describes:—"The breathing is from time to time interrupted by periods of apnœa of varying length (five to thirty seconds), between which occur a series of respiratory acts, which begin by very feeble and barely perceptible movements, and gradually grow fuller and stronger until they reach a climax, when they occasionally terminate by a long-drawn sigh, or more commonly pass through a descending scale of movements, each growing more and more feeble until they end with barely perceptible respirations, such as marked the beginning of the series. This period of respiration, which also occupies from five to thirty seconds, is followed by a second period of complete apnœa, which is in turn succeeded by a group of respirations similar to the first."—("Philadelphia Med. Times," May 27, 1876.)

Cheyne and Stokes originally believed this form of breathing was peculiar to and diagnostic of *fatty degeneration of the heart.* Little showed it occurred in other *organic lesions of the heart and aorta,* whilst Traube showed it occurred with *cerebral hæmorrhage, tumours of the brain, uræmic coma,* and the exudative stage of *tubercular meningitis.* Dr.

Pepper points out, that it is frequently and specially to be found (although not constantly) in tubercular meningitis, in which cases it has, he considers, a peculiar diagnostic value not usually recognised. Cases in illustration are recorded.

Aneurism of the Aorta. — Dr. Lyman reports a case of thoracic aneurism in a male, ætat. 35. He entered the hospital on 9th May. A year previously he had a stone fall on him, breaking his arm and three ribs. Six months later he slipped, and "felt something give way in his chest." The pain in the chest gradually increased, and six months after the last accident he sought admission to the hospital (9th May), when on examination a pulsating tumour 2½ inches in diameter was detected below the sternal end of the clavicle. There was great pain on deglutition. There was cough, dyspnœa, headache, muscæ volitantes, etc. His health slightly improved, and on 13th June he left the hospital, but returned on September 5th, with a renewal of the bad symptoms, which he dated from a third accident, occasioned by a pair of horses running away with him. The tumour now was found to be 5 inches in diameter and 1 inch above the level. The symptoms from this time gradually increased, the dyspnœa became more urgent, the tumour enlarged, blood was expectorated, and finally he died from exhaustion on January 1, that is one year and seven months from the first accident, and thirteen months from the second.

Post-mortem.—Tuberculosis. Heart healthy. Opening into aneurismal sac ½ to ¾ inch above aortic valves, the orifice being about 3 inches in diameter. The sac held about 20 ozs., and was partly filled with soft clots, and contained considerable fibrin. The ribs and sternum were not eaten through.—("Boston Med. and Surg. Journ," Jan. 13, 1876.)

Aortic Aneurism, perforated by an external Abscess.—A case is recorded by Dr. Draper, of a man aged 40, living for thirty-seven hours after the perforation of the sac of an aortic aneurism, the perforation being due to ulcerative action from an external abscess. The following are the results of the post-mortem:—"The heart was found not to be greatly displaced, the apex being about 2 inches to the left of the median line. This was probably owing to the fact that the left lung was everywhere bound down by firm adhesions. The left pleural sac contained about 1½ pints of sero-purulent fluid. The whole arch of the aorta was found to be affected. Just to the right of the origin of the innominate artery an opening of the size of a small pipe-stem was seen, communicating with an alveus under the sternum; and this had, no doubt, been the immediate cause of death. At a point corresponding to this, the manubrium of the sternum was very badly eroded. The original or main aneurismal sac was situated in the transverse portion of the arch, and on its lower aspect, just opposite the mouths of the innominate, left common carotid, and left subclavian arteries. These arteries were not compressed or affected in any way, and thus the marked regularity of the radial pulse on both sides, which had been noticed, could be accounted for. The distended cavity of the aorta at this point would probably have admitted a moderate-sized fœtal head. The sac was filled with soft clots, and over the greater portion of its internal surface old layers of fibrin were deposited. Its walls were everywhere thick and firm.

The descending portion of the arch was so firmly adherent to the vertebræ that it was much lacerated in removing it from the thorax. There were extensive caries and erosion of the second, third and fourth dorsal vertebræ, and of the corresponding ribs; one of the latter being almost entirely eaten through. The right lung, except being somewhat œdematous, was normal. The left bronchus had been strongly pressed upon, and a section of the left lung showed that it was firmly compressed, and everywhere riddled with abscesses, there being several cavities in it of the size of a walnut."—("Philadelphia Med. Times," July 10, 1875.)

Thoracic Aneurism treated by Electrolysis.—Dr. Bowditch records an interesting case of "Thoracic Aneurism treated by Electrolysis," in a male, æt. 40. The symptoms (cough and dyspnœa) set in suddenly, whilst the patient was assuming an erect attitude for the purpose of combing his hair. On examination, a rounded prominence was noticed between the right clavicle and the fourth rib. Three steel needles, well varnished, except at the points, were introduced at a depth of 1½ inches, through the centre of the tumour, each needle being half an inch from the other. These formed the positive pole of 12, increased after a few minutes to 15, cells of a Störer's battery —the negative pole being a large pad placed on that part of the left breast corresponding to that in which the needles were placed in the right. The passage of the current was continued for 14 minutes. Some benefit having accrued, the operation was repeated on the fifth day, 20, afterwards increased to 28, cells being now employed, and the operation again lasting 14 minutes; after which, in this as in the former operation, the failure of pulse and strength compelled its discontinuance. This faintness, however, on both occasions soon yielded to treatment. From this time, however, the patient seemed gradually to get worse, and died on January 21st, ten weeks after the first operation.

Post-mortem.—An aneurism of the ascending aorta was found, the size of a child's head. It was lined with a dense clot, but the clot in no one point showed any definite relationship to the entrance of the needles.

Dr. Bowditch observes that although after each operation the tumour became harder, the pulsations less, and the inability to lie on the left side remedied, still the operation produced no real improvement.

The following is a tabular statement of the cases of Thoracic Aneurism treated by Electrolysis :—

THORACIC ANEURISM—ELECTROLYSIS.

Date.	Name.	Number of Cases.	Result (unknown in 13 cases).		
			Cure.	Death.	Relief.
1846-70.	Ciniselli.[1]	23	6		
	do. (in Althaus.)[2]	2	1	1, after four mos., suddenly.	Great relief in the interval.
1866.	Duncan.[3]	1		1, on eighth day.	
1867.	Duncan and Frazer.[4]	1		1, not delayed.	
1873.	Bastian.[5]	1		1, on twenty-first day.	
1873.	Althaus.[2]	3		1.	2.
	do. (Arteria innominata.	1		1, in a few days.	
1874.	Anderson.[6]	1		1 in thirteen mos.	Prolonged relief.
1870.	De Cristophoris.[7]	3		1, late. 1, in two days. 1, in eleven days.	Mitigated and relieved. Great relief. Great relief.
1872.	H. I. B.	1		1.	Relief to certain symptoms.
		37	7	11	6

A little less than one-third die soon. A little more than one-third are either cured or relieved. Less than one-fifth are cured, and even these have relapses.

The following is Dr. Bowditch's summary of his views respecting the operation :—

1. In any case in which treatment such as Valsalva's, as modified by Tuffnell, or still further as suggested by myself,* is advisable, and in which there can be no doubt, from the physical exploration of the chest, that aneurism of the arch of the aorta exists; if, moreover, we find that the lungs are not very much involved, and if we have made up our minds that the case tends certainly to death, perhaps attended with severe suffering,—in such a case there can be no doubt that we should be justified in advising electro-puncture, for relief at least, and with the hope of a cure if the aneurism be small.

2. As to how it should be done, whether by applying to the needles the positive pole or the negative, or both, or one and the other alternately, I think no decision can be made further than this : the positive pole causes a firmer clot, and disengages less gas than the negative.

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* See Proceedings of the Boston Society for Medical Observation, February, 1866 and subsequently published in the " Boston Medical and Surgical Journal."

It was used in our case. A great diversity of opinion exists as to these questions, which cannot be settled till we get further facts.

3. A mild current should be used at first, and continued for some time. I have questioned whether in our case we did not too rapidly increase the number of cells, and whether it was not on that account that our patient had the peculiar symptoms.

4. Absolute rest before and after the operation, if possible in a perfectly horizontal posture, should be maintained for months, according to the principles laid down by Tuffnell, although I would allow a little more food than he does.

5. In regard to drugs, I should be governed by circumstances; gentle laxatives are admissible; perhaps digitalis, if the pulse be too rapid. Iodide of potassium might be tried; also cold or compression; if need be, leeches might be applied.—("Boston Med. and Surg. Journ.," Jan. 20, 1876.)

Functional Diseases of the Heart.—Dr. G. P. Andrews contributes a paper on "Functional Diseases of the Heart." The paper commences by a general summary of the relations of the nerve supply of the heart, as, *e.g.*, heart and stomach, heart and brain, remarking how that from "our present knowledge of the relations between the heart and general organism, through the nervous system, it is easy to see how functional disorder may arise and become permanent without any recognizable lesion, or may be the precursor of grave organic change. The explanation of the frequence of nervous derangement of the heart's action in valvular disease is also readily made through the morbid impressions transmitted from the brain when the blood becomes deteriorated. The general nervous excitability so often concomitant with inorganic disturbance, may be traced to the same origin."

He groups his cases under three heads, which heads seem to be often mere progressive stages.

1. Mild and recent cases in overtasked persons, or in persons suddenly called upon for severe mental or physical effort. Such cases are commonest amongst females, and for the most part easily yield to early treatment.

2. Cases where the symptoms of the No. 1 class have become chronic.

3. Cases where functional disturbance is associated with organic cardiac changes, the functional derangement preceding the organic changes.

Dr. Andrews does not refer to this class those cases of cardiac disease that have their origin in inflammatory affections, but only those cases that arise in the obscure nutritional changes that usually manifest themselves first in nervous disturbances, but at length involve the blood, so much so that its impoverished state is unmistakable. Such a case, for instance, is the general tendency to fatty change, in which the heart is often the first to yield; dilatation, and not unfrequently valvular disorders arising. Cases illustrating these three classes are given, but they present nothing unusual to require a detailed notice.

Dr. Andrews notes that "Cardiac irregularity, with or without palpitation, often occurs in the course of chronic phthisis pulmonalis, arising at first in connection with the blood changes, and aggravated by derangement of the nerve-functions, probably caused by imperfect oxygenation of the blood, for it is observed that the cardiac symptoms do not appear until the function of the lungs has become much impaired by destruction of tissue."

Lastly he points out the paramount necessity of very careful diagnosis between actual organic murmurs and blood murmurs, and on this matter quotes "Dr. Stokes's resumé of points specially to be noted on examination :—

"1. Previous history of the patient.

"2. Existing vital symptoms.

"3. Duration of the murmur.

"4. The amount of accordance between the physical signs and the history, general state of the patient and condition of the cavities of the heart, so far as they can be ascertained.

"5. The state of the heart as to general excitability is important. Murmur, wherever seated, coëxisting with a tranquil and regular action of the heart, is more likely to proceed from organic disease than the opposite, and when seated in the mitral than in the aortic orifice.

"6. The seat or the point of greatest intensity of murmur must, if possible, be determined. A systolic aortic murmur, unattended with the symptoms and other signs of organic disease of the valves, especially those of regurgitation, should be considered as inorganic."

"Dr. Andrews concludes his paper by remarking—

"Where there is irregularity, with or without palpitation, but no murmur and no sign of change in the size of the heart, and no history of rheumatism in the case, the symptoms may be referred to deranged innervation. In giving a prognosis, especially where the symptoms are of long standing, the fact that organic change may arise as a sequence of nervous disturbance should be borne in mind, and modify the opinion expressed to the patient's friends. The sufferer should *not* hear any unfavourable suggestions, as patients of this class present a curious contrast in their excitability, to those where death is imminent from advanced structural change, but in whom there is generally a lack of anxiety often amounting almost to apathy."—("Detroit Review of Medicine and Pharmacy," October, 1875.)

Professor Austin Flint details six cases of functional disorder of the heart, in which there was great infrequency of the pulse. The first case was a woman, aged twenty, suffering from syphilitic laryngitis. When she entered the hospital the pulse was 40 per minute, and, although the operation of tracheotomy was performed, no change took place in the pulse. After a time she was discharged, but on re-entering, the pulse counted 16 per minute, but by degrees increased to 40. At times the heart would cease beating for sixteen or eighteen seconds. No lesion of the heart could be distinguished. The second case was a lady, aged thirty-five, whose pulse averaged 40 per minute. Several years afterward she died of typhoid fever, and, on examining the heart carefully, no sign of disease could be made out. The third case was a man, aged thirty-eight. He had an attack of pneumonia, and after convalescence the pulsations varied from 35 to 46. The fourth case was a man, aged fifty-three. He suffered from intermittent fever. The pulse registered 26 beats per minute. Under the influence of cathartics and quinine it rose to 36 on the third day, 42 on the fourth day, 60 on the fifth day, and 80 on the sixth day. Eventually he recovered completely. The fifth case was a man aged forty-six, who suffered from malarial fever. The pulse had been 75 per minute in health, but sank to 40 and 30. Eventually it rose to 50, and then to 74. The sixth case was an anæmic patient, aged forty-three. Nine years ago he was accepted by an insurance company, and granted a policy, and the inference was that the pulse was not abnormal to any marked extent. When he came under observation the pulse was 26 per minute, but afterward rose to 40.

The causes seem, therefore, to have been syphilitic disease, spasm of the glottis, pneumonia, exposure to cold, malarial fever, and indigestion. The diagnosis of this variety of functional disorder involves—first, determining that the infrequency of the pulse is not a normal peculiarity, either congenital or acquired. Secondly, organic affections of the heart must be excluded. Mitral lesions, obstructive or regurgitant, but especially the former, occasion an infrequency of the radial pulse. The radial pulse, under these circumstances, does not represent all the ventricular systoles. This is easily determined by comparing the pulse with the heart-sounds, the stethoscope being applied over the apex of the heart. To exclude fatty degeneration of the heart is not so easy, and infrequency of the pulse is sometimes a marked symptom of that affection. The age of the patient, the feebleness of the first sound of the heart over the apex, the habitual want of breath on exercise, the tendency to syncope when associated with an infrequent pulse, will generally furnish diagnostic points sufficient to show the pathological connection of the latter.

An error of diagnosis which is likely to occur is the confounding of this with another functional disorder of the heart, namely, a disorder characterised by a regular alternation of a ventricular systole giving rise to a radial pulse, with one so feeble as to be not appreciable at the wrist. A comparison, by means of a stethoscopic examination of the heart-sounds with the radial and the carotid pulse, will enable us always to exclude not only this disorder, but also a veritable reduplication of the heart-sounds. Such a comparison will show that infrequency of the pulse represents a corresponding infrequency of the heart's action.

Infrequency of the pulse is a well-known symptom in cases of injury of the skull, and in certain intercranial affections. Cerebral hæmorrhage, embolism, and thrombosis are easily excluded by the absence of paralysis; but the exclusion of subacute or chronic meningitis is not so easy; infrequency of the pulse due to this cause is, however, accompanied by cerebral symptoms denoting compression of the brain, symptoms which are wanting in cases of infrequency of the pulse, characterising a functional disorder of the heart. The absence of fever, increased sensibility to light and sounds, together with other symptoms embraced in the clinical history of meningitis, will render the exclusion of that affection positive. The pulse is abnormally infrequent in cases of jaundice and in some cases of uræmia; but these affections are easily excluded. The rationale of the disorder under consideration leads us to the central connections of the pneumogastric as its seat; further than this in the pathology our present knowledge does not enable us to go.—("American Practitioner," January, 1876).

Rupture of the Heart; *Embolism of the Coronary Artery* (reported by Dr. Cutler).—A female, age 75, complained of pain in the præcordial region. It was never very intense, but at the postmortem a rent was found in the right ventricle, near the base, and in the course of the right coronary artery, about an inch in length, from which a dark clot protruded. A broken-down thrombus was found in the left ventricle. The coronary arteries were much dilated and calcified, a plug being found in the right artery, completely occluding it. The heart everywhere was in a state of fatty degeneration.—("Boston Med. and Surg. Jour.," Jan. 12, 1876.)

Pressure from an Aneurism on a Bronchus producing pulmonic consolidation.—Professor Loomis, in a clinique, mentions one of three cases which had come before him where there was pulmonic consolidation as the result of pressure on a bronchus. Under what circumstances, the Professor asks, can you have all the physical signs of fluid in the pleural cavity, excepting the displacement of the heart, and yet no fluid? "To my mind," he says, "this can only be accounted for in one way—either a small aneurism, an enlarged gland, or some other agent, has, by pressure, obliterated the calibre of the left bronchus, and as a result we have pulmonic consolidation. Now, this at first seems strange, if not improbable, but when we consider the mechanism of it, it will not appear so.

" When obstruction of a bronchus, from any cause, takes place, there follows partial or complete collapse of the air-vesicles beyond (well illustrated in the case referred to in the following paragraphs). With the collapse of the vesicles there is a diminished pressure on the capillary vessels, resulting in their dilatation and increased supply of blood to the vesicles. Now, in accordance with a well-known pathological law, rapid cell-formation takes place, distending the lobule to its normal size, and giving us a condition closely resembling the third stage of catarrhal pneumonia.

" The history of the case in question was briefly as follows:—A Scotch sailor, aged 33 years, entered Bellevue Hospital, November 30, 1875. He had contracted syphilis thirteen years previously, and although he had been treated with mercury and iodide of potassium, the disease reappeared at intervals. Three years ago he received an injury on the left breast caused by a weight of three hundred pounds falling on him, and since that time had been addicted to stimulants. Last February he complained of a cough, which lasted till July. The sputa which he expectorated were chiefly composed of glairy mucus and muco-pus. Three weeks before entering hospital he spat up a small amount of blood of a bright colour. Six weeks before admission he complained of a sharp lancinating pain in the left chest. On admission he suffered from a malarial attack, which soon yielded to quinine. The temperature was nearly normal. Shortly after entering hospital he spat up a mouthful of blood, and was much troubled with a cough of a bronchial character. An examination of the chest revealed a dull or nearly dull percussion-sound over the left chest, also diminished respiratory motions on that side. On auscultation no respiratory sound could be detected, with the exception of bronchial breathing in the interscapular space. On listening carefully, Dr. Loomis detected a bruit in the same region, but it could not be heard at all times. The physical signs pointed to pleurisy with effusion on the left side; but it was found that the heart was not displaced, and this led Dr. Loomis to diagnose it as a case of pulmonic consolidation due to pressure on the left main bronchus. The general condition of the patient remained unchanged from the time of admission up to his death, a period of nearly two months. Death took place from a hæmorrhage of about 2 quarts. The night before he died he said that he felt better, and proposed on the following morning to leave hospital.

Autopsy.—The left lung was thoroughly consolidated, and closely resembled the appearances found in the third stage of pneumonia. The heart was normal. The aorta was atheromatous, and at the point where the left bronchus passes under it, a fusiform aneurism was found, which had pressed on the bronchus and obliterated its calibre. The aneurism had ruptured into the bronchus, and in it there was found a well-organised clot. The aneurism was about the size of a hen's egg. Dr. Loomis said the reason he made the diagnosis in the case presented was from the fact that he failed to do so in a similar case which had previously been under his observation."—("New York Med. Journ.," Vol. xxiii., p. 269.)

In the "New York Med. Journ.," Vol. xxiv., p. 178, a case is recorded which occurred in the Roosevelt hospital, illustrating the first pathological result referred to by Dr. Loomis in the last case, as the sequel of catarrhal pneumonia due to closure of the bronchus, viz., collapse of the lung. The case is as follows:—

"A Cuban sailor was admitted, suffering from marked dyspnœa, but on examining the chest the bronchial and tracheal râles obscured all auscultatory signs. He said, however, that not long before he was attacked with dyspnœa, which continued up to his admission. On the following day the patient died. At the postmortem the left lung was found collapsed, and, pressing upon the left bronchus, was noticed the protrusion of a sacculated aneurism. A large aneurism involved the aorta, and this sac communicated with it by an orifice $\frac{3}{4}$ of an inch in diameter. At the point of pressure on the bronchus ulceration existed."

The case recorded by Dr. Loomis (page 36) illustrates the succeeding stage, viz., consolidation and expansion, which, there can be very little doubt, would have resulted in the case just quoted, had the patient lived.

Encephaloid Cancer of Lung.—Dr. Guy, of the Boston City Hospital, records a case of encephaloid cancer of the lungs, in a man ætat. 57. Up to January, 1875, the patient was robust in body and active in habits, but had complained for more than thirty years of pain in the right side, after eating. In January he caught a severe cold, cough and especially dyspnœa, being the prominent symptoms. The cough got gradually better, but not the dyspnœa, the patient complaining of a load in the region of the liver, preventing his breathing freely. A fresh cold was contracted in July, 1875. An attack, lasting for about six hours, of violent dyspnœa and pain, with cough, occurred one night shortly after this, recurring every night for a week, the cough being spasmodic and dry. The region of the pain complained of was a space 2 inches in diameter on the nipple line below the ribs, on the right side. On examination, however, no swelling was detected, although the part was tender and tympanitic. Under chloral and opium the patient improved, the cough, dyspnœa and weakness being persistent.

In September a careful examination of the chest was made; chronic catarrhal pneumonia was diagnosed, there being dulness with subcrepitant and finer râles at the base; respiration in both lungs indistinct. No cachectic appearance was noticed either at this time or later on in the case. Six weeks afterwards the patient was again examined:—The chest was flattened, the dulness had increased, vocal fremitus was absent, and there were evident signs of effusion in the left pleural cavity; temp. 99·8; pulse 92. The chest was then punctured, by which some relief was afforded. Paracentesis was again performed in less than a week after the first operation, but the relief afforded either to the cough or to the breathing was but very slight. The patient gradually got worse; the strength diminished, the left intercostal spaces began to bulge, the lower extremities became œdematous, and there was considerable cardiac displacement. About the middle of November paracentesis was again performed, but no fluid was obtained, either because the instrument had penetrated a malignant mass, or because the lung had crowded against the walls of the chest. He died on 20th November, of exhaustion, conscious to the end, but suffering intensely from the dyspnœa.

Post-mortem.—Twelve hours after death. Rigor mortis well marked; fluid in left pleural cavity; left lung contracted and pushed upwards. The lung was hard, contracted, slightly compressible, and the whole pleural surface was closely infiltrated with encephaloid cancer, which is described as having the appearance of miliary tubercle; nodules and granules were also found of a soft solid consistency, varying in size up to that of an apricot; an opaque grey fluid exuded when these lumps were pressed, and this fluid was found to be loaded with large nucleated cells of irregular shape; nodules were found in the *kidneys* of a similar kind to those in the lungs; *heart* somewhat enlarged, but otherwise normal; *liver* also enlarged, but normal; *stomach and spleen* normal; a few enlarged glands infiltrated with cancer were found behind the duodenum.

Note in this case—

1. Difficulty of diagnosis.
2. *Pain.* The patient had no pain in the side in which there was the principal and the extensive disease, but had suffered for many years with pain in the opposite side (probably neuralgic).
3. No hæmoptysis or expectoration (as is usual in such cases).
4. No cancerous cachexia.—("Boston Med. and Surg. Journ.," Jan. 6, 1876).

Pneumonic Gangrene of Lung.—Dr. Rudderow reports a case of pneumonia culminating in diffuse gangrene of the right lung in a man aged 43. The interest of the case is in the circumstance that, during the latter part of the attack, the physical signs were similar to those usually observed in pleurisy with effusion. He died seven days after the first setting in of the pneumonia.—("Philadelphia Med. Times," Aug. 28, 1875.)

Paracentesis Thoracis. — Dr. Tyson, Professor of Pathological Anatomy in the University of Pennsylvania, contributes a lecture on "Paracentesis Thoracis."

He is of opinion that the operation is far too infrequently performed for two reasons, first, a belief that it is a serious one; and secondly, a knowledge that thoracic effusions generally get well.

He considers the operation called for under the following circumstances, and for the following reasons:—

1. When from rapid accumulation in the chest there is danger of death from syncope, heart clot, or asphyxia.
2. In moderate accumulations that retard recovery and are likely to result in empyema.
3. Because he considers long continued pleuritic effusion an exciting cause of tuberculosis.
4. For the relief of the dyspnœa, and in pleuritic effusions ensuing in the course of valvular disease of the heart and in Bright's disease.
5. For relief in cases where pneumo-thorax co-exists with effusion, where the pleura has been perforated by ulceration in phthisis or even in cancer of the pleura.

As to the *site* of the operation Dr. Tyson prefers (if practicable) a spot between the eighth and ninth ribs, in a line perpendicular to the inferior angle of the scapula, this point giving all the advantages of dependence, thinness of chest walls, and remoteness from liver or spleen.

In *operating* Dr. Tyson prefers to make no previous incision of the skin with a lancet, or to attempt to induce local anæsthesia. Moreover he considers that much of the apprehension formerly existing with regard to the access of air is unfounded. He considers an ordinary trocar and canula sufficient, but considers it preferable to use some form of aspirator, that of Potain being, in his opinion, the best. He does not empty the chest completely, not that he fears syncope, but that he thinks by this means he avoids the after violent pain that usually occurs.

In a case of *Empyema* Dr. Tyson recommends that at the first operation, after completely emptying the chest, the opening should be closed, inasmuch as there is a chance that the pus will not again accumulate. If it accumulates, however, a drainage tube must be used, and iodine injections, of which Dr. Tyson speaks highly. — ("Philadelphia Med. Times," August 21, 1873.)

Empyema treated by a new method.—In the "New York Medical Journal," Vol. ii., p. 180, reference is made to what is represented to be a large experience at the Mount Sinai Hospital, in the treatment of *empyema*. The treatment adopted depends on removing the whole of the pus, and substituting warm water or warm medicated solutions for it. The aspirator is not used, but in order to effect a thorough washing out, two openings are made in the chest, one anterior and the other lateral and slightly posterior; pieces of oil-silk are placed over the posterior opening, and stuck on with collodion, so as to prevent the bed clothes being soiled. All that is necessary is to carry in the fluid at the upper opening, and continue it till all trace of pus has disappeared in the discharge from the lower one.

With regard to the fluid to be employed, it is best, they consider, to use warm water of a temperature of one hundred degrees, till the chest is thoroughly washed out, and then a very dilute solution of salicylic acid, carbolic acid, or iodine. This method removes all trace of pus from the chest, and leaves in its place a desirably medicated fluid of the same temperature as the body. The operation of washing out can thus be performed without pain or discomfort of any kind to the patient, inasmuch as the oil-silk at the lower opening conducts the discharges into a proper receptacle. It sometimes happens that, as the process of cure is being established, a septum is formed in the pleura, which converts the single cavity into two. But by the method of counter-opening, it will be found that as a rule each cavity will have an opening. The only additional annoyance in the treatment will be the necessity of carrying a catheter as far as possible into the cavity, so as to allow the entering fluid to have a free circulation within. In some cases, where a counter-opening may seem to be contra-indicated, it becomes necessary to carry a gum-elastic catheter in for its full length, and even then all trace of pus may not be removed. It has been found by experiment that, when a double canula is introduced for the entrance and exit of the fluid, a current is caused between the two openings of the canula, and only an ounce or two of pus is removed; and, as before suggested, the next best plan to that of counter-opening is to make use of a long catheter and allow discharge to take place at the opening made in the chest.

A case of empyema has recently been treated in this hospital, in which a dilute solution of iodine was used. Marked improvement took place, but one day the patient died of symptoms of apoplexy. At the autopsy an embolism was discovered, which extended down into the internal carotid artery.

Goitre, its Varieties and Treatment.—Lücke classifies the different forms of bronchocele as follows: — 1, struma hyperæmica; 2, struma parenchymatosa, follicularis (Virchow), lymphatica; 3, struma fibrosa; 4, struma vasculosa (aneurysmatica); 5, struma colloïdes, gelatinosa; 6, struma cystica (Beck), hydrocele colli (Maunoir).

Simple hyperæmia involves the entire gland. The throat seems larger, rounder, and fuller; the clothes become tight; the larynx is less prominent, and the outline of the sterno-cleido-mastoid muscles is less distinct. The shape of such a throat is by no means uncomely. The hyperæmia usually passes off with the cause (pregnancy, menstruation).

The follicular hypertrophy or parenchymatous struma gives a greater resistance to the touch and a sharper boundary. Some parts are usually more enlarged than others, and are to be distinguished from one another by digital examination. This form rarely attains the size of a small hen's egg in one lobe. The diagnosis depends on moderate size, soft, elastic consistence, and smooth surface.

Struma vasculosa et aneurysmatica belongs to the small or at least moderate-sized bronchoceles. It usually affects the whole gland symmetrically, the form of which is therefore not changed. The most important diagnostic point is the possibility of reducing it to a small size by continuous pressure, which having been relaxed, it fills up again more or less by jerks. The true aneurysmal bronchocele pulsates, and we hear vascular bruits in it.

The colloid form affects not uncommonly the whole gland. The enlargement is symmetrical, and one lobe may become as large as a man's fist. The diagnosis is made from the symmetrical form, and the doughy, almost soft consistence.

The diagnosis of the fibrous form is made from the presence of single hard knots, which can be isolated from one another.

The mixed form most closely resembles the fibrous, but shows a different consistency in different parts. The mixed bronchocele attains the largest size. Those bronchoceles in which the mixture of fibrous and parenchymatous degeneration preponderates are inclined to be pendulous, when small multiple cysts are found in them. When larger cysts form in solid masses, the tumour has usually a broader base.

The diagnosis of the cystic form is made from the fluctuation, eventually also from the transparency, from the globular form of the tumor, and its sharp boundary. Tapping affords the safest conclusion.

With reference to medical treatment, Lücke says the influence of iodine on thyroid enlargement is not to be doubted, but it is indicated only in tumors containing true glandular tissue. The dose need not be great. Two or three grains twice a day is enough at first. It is best given in simple solution with water.

If the unguentum potassii iodidi is used, a few drops of tinctura iodinii should be added, as the pure, fresh ointment contains no free iodine, and will be efficacious only when it has become yellow, *i.e.* decomposed. Painting the gland with tinctura iodinii should not be practised, as the skin is too tender. The injurious effects of iodine on the testicles and mammæ are not easily to be seen.

With reference to the surgical treatment of bronchoceles, it is convenient to consider separately those which are solid and those which contain fluid. The history of the treatment of hard goitres is not much more than a hundred and fifty years old. The ligature of the thyroid arteries was one of the first methods; then came the employment of the seton; later, cauterisation, extirpation, and the use of the écraseur.

Opinion has constantly changed, so that no one method of treating solid goitres meets with general acceptance. Ligature of the superior thyroid arteries was finally given up, on account of the frequency of secondary hæmorrhage, and because at the best only a diminution in the size of the tumor was obtained. The seton was often used in the last century, but was given up on account of the frequency of dangerous inflammation, purulent infiltration, pyæmia, and even hæmorrhage. It has been, however, recently again recommended very strongly by Mackenzie. Cauterisation and subcutaneous tearing of the gland are both to be avoided, on account of danger. Lücke thinks well of parenchymatous injections of tincture of iodine in the follicular form of goitre, and thinks it acts specifically as well as locally by inflammation and cicatrisation.

The most radical operation is obviously removal, whether by ligature, écraseur, galvano-caustic loop, or the knife. Surgeons generally dread this operation, and advise against it. Undoubtedly extirpation cannot be practised on all goitres. The gland must be movable, as a first condition, and must not have too large a base. It is still better, of course, if it is pediculated. Hæmorrhage is considered the chief danger. Extirpation by ligature, écraseur, or galvano-caustic loop is dangerous. In all cases in which removal is indicated, it had better be accomplished with the knife.

This operation has been gaining again in favour during the past ten or fifteen years. Lücke says if great care is taken to tie all the vessels peripherally and centrally, there will be little bleeding, and he has never experienced secondary hæmorrhage. Sometimes the operation is very easy, inasmuch as one may peel out the tumor with blunt instruments up to a thin pedicle. Often, however, as many as thirty ligatures have to be used.

Recently Kocher has proposed to dig out the gland substance. The gland, having been laid bare, is fastened to the edge of the skin on either side; it is then incised and the gland substance is completely spooned out with sharp spoons and the fingers. The hemorrhage is profuse and must be stopped by a tampon. This method would be indicated only in parenchymatous and colloid goitres.—("Boston Med. and Surg. Journ.," April 13, 1876.)

Thyroid Tumours treated by Excision.—Dr. John Homans records a case of successful excision of three thyroid tumours (cystic adenoma of the thyroid) from an unmarried woman 32 years of age. They had been growing for eight years, but had caused inconvenience (chiefly dyspnœa) for only two years before the operation was performed. Iodine had been tried without success. The tumours were removed at intervals. The patient afterwards recovered. The voice also was gradually improving at the time the report was made. It was noticed in laryngoscopic examination that, before the operation, the left vocal cord remained immovable, either in speaking or in breathing; its movements, however, were slowly improving.

Dr. Homans wishes it to be understood that he does not recommend excision as a rule in the treatment of thyroid growths.—("Boston Med. and Surg. Journ.," Jan. 13, 1876.)

Asthma treated with Nitrite of Amyl.—Dr. Leiser records three illustrative cases to show the good effects resulting from the inhalation of nitrite of amyl in the paroxysms of asthma. Five to ten drops is as a rule sufficient, but in one case such tolerance of the drug had been attained that the patient (female aged 60) inhaled it direct from the bottle. From the cases quoted the paroxysm seems to have yielded wonderfully to its influence.—("Philadelphia Med. Times," Oct. 30, 1875.)

Asthma treated with Sanguinaria Canadensis.—Dr. L. B. Anderson, of Virginia, writes of Sanguinaria Canadensis:—

"I have never seen any agent afford such marked and grateful relief in a violent attack of asthma as this. I give it, as in croup, until vomiting or relief occurs. It sometimes fails, but the failure has been a rare exception in my experience. After relief is obtained, Dr. Anderson recommends that it be taken for some time. The dose recommended is 20 drops of the tincture three times a-day."—("Southern Med. Rec.," Feb., 1876.)

Asthma treated with Tinct. Veratri Vir., and Morphia.—Dr. J. L. Cook speaks of the admirable results he has obtained in asthma from the following when all other remedies have failed:—

Tinct. verat. vir., gtt.xxxvj.; Morphiæ sulph., gr. j.; Syrup ipecac., ʒ vj. A teaspoonful every three hours, if necessary.—("Louisville Med. News," April 22, 1876.)

Cod Liver Oil; its value disputed.—Dr. Hurley contributes a paper to the Transactions of the State Medical Society of Arkansas on "Cod Liver Oil." He denies that it possesses any therapeutic value over other oleaginous substances. He considers it has no specific action in any of the diseases for which it is recommended. He says:—

"Divest cod-liver oil of its nutrient properties, and it does not possess a single virtue not found in other animal oils not derived from the liver, and some of the vegetable oils also. Neither are the nutrient properties of cod-liver oil superior to those of other animal oils. How often does the oil prove indigestible, giving rise to nausea and disgusting eructations? The majority of patients have such a repugnance for it that it cannot be overcome by any combination to mask it. It seems quite extraordinary that, notwithstanding the disgusting qualities of the oil, in many instances these are its chief recommendations."

Cyanosis and Glycosuria.—Dr. Alfred L. Carroll, writing from New Brighton, Staten Island, says:—"I have a case under my care which suggests what I have not seen mentioned by any medical writer—viz., the existence of glycosuria as a result of certain cardiac lesions. The patient, a gentleman aged 32, has a congenital heart-defect, the precise nature and extent of which I can only guess at. In infancy his life was pronounced very precarious; during adolescence he had several attacks of syncope; now, strange to say, he can make quite rapid exertion with comparatively little dyspnœa, and, before he came under my care, had taken to rowing exercise. On examination I found more confusing murmurs than ever met my ear before, both systolic and diastolic. There could be little doubt as to pulmonic obstruction, but with this was a rasping double systolic bruit referable to the left ventricle. The heart was large, and its action rapid. The patient, as I have said, suffered little from dyspnœa or palpitation, even after the sexual orgasm, though respiration was habitually shallow and quick. His frame was fragile-looking, and he had the peculiar transparent bluish pallor which we often see. The condition (or one of the conditions) existing is, I think, pulmonic stenosis with deficiency of the ventricular septum. But the curious feature of the case is the presence of sugar in the urine. When the patient first consulted me on account of his feeling temporarily "run down," I examined his urine (only qualitatively), and found therein a small amount of sugar. Since then I have made frequent tests, almost always with the result of discovering varying quantities of sugar, from a mere trace up to a considerable deposit, depending, apparently, on his ingestion of carbohydrates. The total secretion of urine seems never to have been excessive, but the inclination to urinate is rather frequent. The urine, in all other respects, is normal, and the microscope reveals no morbid elements. The explanation that occurred to me was that the cardiac impediment to the pulmonary circulation—the insufficient oxygenation of the blood—might account for the systemic accumulation of sugar; but whether clinical observation of other similar cases will confirm this explanation, I am ignorant."

AUSTRALIA.

In "Notes on the Colony of Victoria," by H. H. Hayter, Esq., *Government Statist*, Mr. Hayter gives the following particulars:—

Yearly Mean Temperature in Melbourne.—The mean temperature of the year in Melbourne, derived from observations extending over a period of fourteen years, is 57·6°. January and February are the warmest months in Melbourne, June and July the coldest; the mean temperature of January is 66·7°, that of July is 47·7°. During the last seventeen years the thermometer in the shade, at Melbourne, has risen sixty-one times to or above 100° Fahr., the highest temperatures recorded being 110° on December 24, 1868, and 109° on February 15, 1870. In 1874 the highest temperature was on February 14, 101°; December 17, 102·7°; December 28, 102·2°. During the same seventeen years fifty-two instances are recorded of the thermometer falling to or below the freezing point. The lowest recorded temperature is 27° on July 21, 1869; the lowest temperature observed in 1874 is 29·3°, on August 5.

The rainfall at the Melbourne observatory, for the year 1874, was 28·11 inches; the number of days on which rain fell was 134. The annual rainfall in Melbourne is not nearly so great as that of Sydney, but much greater than that of Adelaide. The mean number of inches of rain during the year is as follows:—Melbourne, 27·58 inches; Sydney, 49·95 inches; Adelaide, 21·36 inches.

The hot winds of Victoria form the peculiar feature of its climate, which is most talked about in other countries, and is most dreaded by new arrivals. They frequently set in about 9 a.m., and blow from the north with great violence, raising clouds of dust. Vegetation becomes parched up, fruit falls from the trees, and most descriptions of animals appear to be greatly oppressed. The average number of hot winds for the colony amounts to eight or nine per annum.

The Death-rate in Victoria assimilates closely with that in South Australia and Tasmania, is higher than that in New Zealand, slightly higher than that in New South Wales, and lower than that in Queensland and Western Australia. The death-rate in all the Australasian colonies is very much lower than that in England and

Wales. The following are the death-rates; those of the colonies being derived from observations extending over the last two years, those of England and Wales from observations extending over thirty-one years:—

Victoria - - -	15·02	per 1,000 of	the mean population	per annum.
New South Wales -	14·48	,,	,,	,,
Queensland - -	17·02	,,	,,	,,
South Australia -	15·27	,,	,,	,,
Western Australia -	17·49	,,	,,	,,
Tasmania - - -	15·37	,,	,,	,,
New Zealand - -	12·86	,,	,,	,,
England and Wales -	22·40	,,	,,	,,

The classification of the causes of death in Victoria dates from the middle of 1853: during the 21½ years from that period to the end of the year 1874, the *number of deaths from phthisis* amounted to 15,386, a larger number than was occasioned by any other disease. The number of deaths from phthisis in Victoria, in the year 1874, was 1,011, or 12·66 per 10,000 of the mean population. In Melbourne and suburbs, the deaths from phthisis during 1874 were in the proportion of 21.03 per 10,000 of the population, a much higher ratio than in the colony taken as a whole. In ten years the annual proportion in Melbourne and suburbs was 21·23 per 10,000 of the inhabitants. In England and Wales, during ten years, the annual rate was 25·47 per 10,000 of the population, or still higher than in Melbourne.

Asthma treated with Belladonna.—Dr. Reeves, of Melbourne, states that the smoking of Belladonna leaves in cases of asthma is infinitely more efficacious than the smoking of Stramonium leaves. The leaves can be used by smoking them in a common pipe in the same way as tobacco, or by burning them in a saucer concontaining lighted charcoal or wood ashes. The pipe is the best: it should have a long stem, and the patients must be instructed to draw the smoke *deep into the chest;* but when the attack is at its height they have not the power to do this. Then, inhaling the fumes from burning the leaves on charcoal or ashes may be tried. The easiest way of doing this is to place a chair before the patient, covering the chair he is seated on and the other chair with a large sheet, so as to confine the fumes, and then placing the leaves on the hot ashes in the saucer.

From two and a-half to five grains of the leaves are sufficient when the pipe is used, and from five to twenty when employed the other way. The relief is immediate, if the smoke is drawn deeply into the chest; a feeling of warmth and relief to the spasm occurring, followed by the expectoration of phlegm. Some of the patients have informed me that at every inspiration they feel the fumes descend lower, as if the spasm yielded as they came in contact with the bronchial tubes.

It is in the spasmodic form of asthma, where there is little or no expectoration, that the greatest relief is obtained, for when the tubes are loaded with mucus the smoke is not able to come into contact with their muscular structure. The action seems to be precisely similar to that of the extract on the muscular structure of the iris—causing relaxation. The relief is always more marked when used as soon as possible after the attack has set in, than later, when the spasm is so great that air is unable to penetrate into the smaller bronchial tubes and air-cells. The only ill effects I have seen have been headache of a throbbing character, like that produced when chloroform is commenced to be inhaled, and slight dimness of vision. These symptoms soon pass off, and are caused by using the leaves too freely.

Those who smoke or chew tobacco do not receive the same relief as those who do not. There are large numbers of the patients attending the Hospital for Diseases of the Chest, in Stephen-street, who use the leaves. Their testimony is that they can always cut short an attack. It is scarcely necessary to say that unless their houses are dry and warm, and they keep themselves well clad, smoking the leaves will only cut short the attacks, but not cure them.—("The Melbourne Med. Rec.," May 24, 1876.)

INDIA.

Pneumonia.—Mr. Joshua Duke contributes "Notes of cases of Pneumonia on the N. W. Frontier." The cases to which reference is made occurred in the cold season of the year in the regiment under Mr. Duke, when it was on the march. The number of cases of pneumonia admitted to the hospital was 35. There were 6 deaths, all being sepoys.

"The facts would seem to show some conditions which are favourable to the development of pneumonia. The soldiers are turned out of their beds at that hour of the twenty-four, when the temperature of their bodies and of the air is at its lowest. They are necessarily compelled to stand about in the cold after their tents are packed; and they then march in close ranks on empty stomachs, inhaling the clouds of dust which fill the air, and some particles of which presumably find their way into the lungs. When sleeping on the ground, when the temperature is always lowest, they are exposed to draughts of cold air. It is difficult to remove these obstacles. Strict attention should, however, be directed to sealing up the sides of the tents with banks of earth, and the men should also, if possible, be allowed straw or grass to sleep upon. It is a fact worthy of record that not a single case of pneumonia occurred among the native officers of the regiment—men who observe the same habits and customs and wear the same dress as the sepoy, and all these men sleep on their own charpoys. It would also seem desirable to supply the men with small flannel jackets to wear next the skin. Dr. Thompson has kindly informed me that all the men of the 1st Punjab Cavalry were supplied with flannel *kurtas* (*mirzaies*), and although they performed the longest march on the frontier (Kôhat to Rajenpore) not a single case of pneumonia occurred. Though it is well known that cavalry are much healthier than infantry regiments, still this fact recommends itself strongly. The 2nd Punjab Infantry, however, enjoyed an immunity from pneumonia until the fifth day of the march, when the first case was admitted. Six others followed in the succeeding five days, and two more occurred on the day of arrival at Derah Ishmail Khan, making a total of nine cases."—("Indian Med. Gaz.," July 1 and Aug. 2, 1875.)

Mr. Duke records the several cases, but as they present nothing remarkable or unusual it is unnecessary to quote further.

Dr. Jessop contributes a paper on Pneumonia, the object of which he thus summarizes:—"Thus far, then, I have endeavoured to show how, through indirect injury to the sensorium, lung disease may be set up without our knowing any thing about it. That in India the powerful effect of solar influence acting on the sensorium, through probably the olfactory, optic, and auditory nerves, predisposes the lungs to congestion from any exciting cause, such as undue cooling of the body by punkahs during sleep, spirit by producing an over-excited action of the right ventricle, tobacco by diminishing the heart's power, &c., &c. That the physical signs are the only means whereby this condition can be satisfactorily determined, although the hollowness of the cheeks and the blueness of the lips should be of themselves almost sufficient to declare the disorder. That the disorder is the first stage of pneumonia, viz., arterial acute active congestion before blood elements have been poured out: it is not marked by increase of pulse or respiration, nor is there any distinctive rise in temperature: there is rarely any cough or sputa, but duskiness of complexion and headache are usually prominent symptoms. That counter-irritation, with rest in bed, has in our hands proved the best and most beneficial method of treatment."—("Indian Med. Gaz.," October 1, 1875.)

Punctured Wound of the Left Lung.—A case is recorded by Mr. Vincent Richards of a punctured wound in the chest made with a knife, in a man aged 22, 1½ inches below and to the left of the left nipple. The hæmorrhage resulting from the accident was severe, and it was certain the lung had been wounded. Collapse supervened, from which however he rallied. There was great pain, and dyspnœa, but no cough. Three days later cough came on, but there was no hæmoptysis; the left side was emphysematous. He quite recovered after three weeks.

Mr. Richards notes that wounds of the lungs are not regarded as so serious, or so likely to be fatal, in India, as they are in England.—("Indian Med. Gaz.," August 2, 1875.)

Cardiac Polypus and Malaria.—Dr. Hill records a case of cardiac polypus in connection with malaria occurring in a male æt. 40. The patient had suffered for years from intermittent fever. At the beginning of March he was attacked with fever. He got better after a few days, but shortly had a relapse, which continued off and on until the 14th of March, when he suddenly died. As some suspicion was raised as to the cause of death, Dr. Hill made a postmortem, and reports as follows:—

"Body stout; cadaveric rigidity present; cutaneous vessels of chest, abdomen, and neck unusually prominent; scalp congested; membranes of brain congested; brain-substance normal; a little reddish fluid present in lateral ventricles of brain; both lungs greatly congested, and on section thin claret-coloured blood oozed; pericardium contained ℥i. of reddish serum.

"*Heart*, large, flabby, and covered with adipose tissue; its muscular fibres were pale and easily torn; the coronary vessels on surface were enlarged. On opening the heart *three large organised fibrinous coagula* (hæmatoma of Gluge) *found within its cavities*, thus:—

"(1). One firmly attached to parietes of left auricle at one end, while the other end had passed through the auriculo-ventricular opening, and was lying in the left ventricle against the ostium of the aorta. The coagulum was yellow and hard; it was 3 inches in length, and ¾ inch at the greatest thickness.

"(2). In the cavity of the left ventricle firmly adherent to the parietes was the second polypus. This was about 2 inches in length and ½ an inch in thickness, of a pale yellow colour, and quite firm and hard; it seemed to be incorporated with the columnæ carneæ at one end, while at the other it was unattached.

"(3.) The third polypus was found in the right ventricle. Like the others this was yellow, firm, and fully organised. At one end it was attached to the ventricular wall, while the other end was within the cylinder of the pulmonary artery.

"The three coagula were so intimately adherent to the cardiac walls that they could not be removed by traction. There was nothing unusual in the other organs examined, except that the liver had the characteristic 'nutmeg' appearance. There can be no doubt that these organised polypi existed during life, and were not formed during the last agony or after death. I therefore stated that death probably resulted from cardiac apnœa, and there was no reason to suspect foul play."—("Indian Med. Journ.," Aug. 2, 1875.)

YMASSLI [illegible]

PORTUGAL.

(*Report by* G. H. BRANDT, M.D , ETC., ETC., of Oporto.)

Deaths from Diseases of the Respiratory Organs in Oporto during the *First Three Months* of the year 1875. Population, 100,578.

DISEASES.	Domicile.	Hospitals.	Total.
Bronchitis (Acute)	51	7	58
Bronchitis (Chronic)	1	2	3
Congestion (Pulmonary)	2	2	4
Croup	32	0	32
Hæmorrhage (Pulmonary)	0	1	1
Hooping Cough	2	2	4
Laryugitis	1	0	1
Pneumonia	30	11	41
Tubercles (Pulmonary)	84	25	109
	203	50	253

Total Mortality from all Diseases :—

January		333
February		276
March		254
Domicile	656	863
Hospitals	207	

Second Three Months.

DISEASES.	Domicile.	Hospital.	Total.
Bronchitis	47	6	53
Bronchitis (Chronic)	11	2	13
Congestion (Pulmonary)	2	3	5
Croup	38	0	38
Hæmoptysis	2	0	2
Laryngitis	0	1	1
Pneumonia	35	11	46
Tubercles (Pulmonary)	100	30	130

Total Mortality from all Diseases :—

Months.	Domicile.	Hospital.	Total.
April	272	73	345
May	232	47	279
June	238	60	298
	742	180	922

Third Three Months.

DISEASES.	Domicile.	Hospitals.	Total.
Bronchitis	51	7	58
Bronchitis (Chronic)	6	4	10
Congestion (Pulmonary)	5	2	7
Croup	12	0	12
Hæmoptysis	2	0	2
Pneumonia	28	8	36
Tubercles (Pulmonary)	102	17	119

Total Mortality from all Diseases :—

Months.	Domicile.	Hospital.	Total.
July	344	61	405
August	240	51	291
Sept.	265	69	334
	849	181	1,030

Deaths from Diseases of the Respiratory Organs in Lisbon during the first quarter of the year 1875. Population, 169,823.

Pneumonia	147	Domicile	929
Bronchitis	79	Hospital	439
Angina	14	Male	701
Tubercules	187	Female	661
Other causes	671		
Total	1,368		

Notes on the Climate of Algarve.—Having for the last two winters suffered from bronchitis, accompanied by severe dyspnœa (bronchitic asthma), and finding the weather unusually cold and piercing during the month of January in Oporto, I resolved to visit the province of Algarve, situated at the extreme south of Portugal. This province, with the title of kingdom, is scarcely known by the Portuguese themselves who live on the north side of the Tagus.. This ignorance arises chiefly from the Algarve trade being carried on with their neighbours, the Spaniards, most of the produce being bought up by them, or shipped to Gibraltar and England. The tunny fisheries are very considerable, producing occasionally £4,000 in one day. The land produce consists chiefly of figs, almonds, oranges, lemons, cork, and alfarroba (locust bean). This latter is turned into a highly nutritious food for cattle in England, whereas the Algarve oxen are frequently fed on the dried fig-leaf.

We started from Lisbon on the 25th January, a bleak, cold, windy morning, crossed the Tagus by steamer, and from Barreiro started in a very comfortable English railway carriage which took us to Beja, the capital of the rich province of "Alemtejo." Dreading to spend a night at the hotel, we hired a carriage and drove to Mertola, a small town on the River Guadiana. Here we had to spend the night, as we were anxious to descend the River Guadiana by daylight. A dirty inn, with hard beds and very insufficient food, was our lot. . . . . Our trip down the Guadiana took us five hours in a small steamer, and is worth while doing. The river is narrow, and one can easily see what is going on, both on the Spanish and Portuguese shore. The aspect is varied, occasionally high rocky hills with little or no vegetation, at times undulating ground and well cultivated, very rarely any flat ground, of which we had seen enough coming through the long-continued plains of the Alemtejo. The Guadiana widens considerably at its mouth, and allows vessels of considerable tonnage to enter. On the Spanish side, the town of Ayamonte looks very conspicuous; built partly on a hill, its houses are completely covered with whitewash, which gives it the appearance of having been hewn out of a chalky mountain. The town on the Portuguese side, "Villa Real de Santo Antonio," looks from the river very imposing, and quite bears the stamp of its noble architect, the Marquis of Pombal. Here we found it windy and chilly, contrasting greatly with the heat we experienced coming down the river, and which obliged us to get under cover to shelter us from the sun's hot rays. At Villa Real de Santo Antonio we fared pretty well; a good old Spaniard, Don Manuel, gave us a very good dinner, without oil or garlic, capital red and white natural wine, excellent sweets, and a basket of excellent oranges (these, by-the-bye, are the best in Algarve). A night and a day was enough for me, finding it very windy and chilly, so we started for Faro, the capital of this province, passing through Tanira. The macadamised road is perfect all the way through, and the country very charming. As we drove on, I found the temperature get gradually higher, and less wind, so that by the time we reached Tanira we could easily fancy ourselves in the month of May; the rows of almond and peach trees in full blossom; the orange and lemon trees covered with fruit; the evergreen locust and olive trees cover the ground on both sides so densely, that one could easily fancy driving through a magnificent orchard. The only tree which reminded us of winter, and that we had not yet reached the end of February, was the leafless fig tree.

Being pressed for time, we made but a short stay at Tanira, and pushed on to Faro. . . . . . . At Faro we fared very well; good rooms, clean beds, abundance of good food, well cooked, and plenty of fresh fish, vegetables, and fruit. This town, like most of the others situated on the coast, has its disadvantages as a residence for invalids. Narrow streets, with bad drainage, most of it being down one side of the street, and exposed to the sun and wind, tells greatly against its hygiene. Houses badly constructed, and crowded together with little or no ventilation, is a great drawback. The population, chiefly composed of fishermen, is not of the cleanest, so that, on the whole, I would not select any of the towns on the coast as a residence for invalids.

Owing to the kind and courteous manner in which I was received by his Excellency the Civil Governor, Dr. Birar Ramalho Ortigaô and Kuman, I was enabled to obtain a great deal of valuable information concerning the climate and prevalent diseases in this province.

As will be seen by the annexed table, Algarve stands higher in temperature and equability than any other European climate, Madeira excepted. I should consider Faro and its suburbs as holding a medium position between Madeira and the rest of Europe; one would neither be "boiled, as in Madeira, nor frozen, as on the Engadine," as a recent observer remarked. In taking a birdseye view of a locality with regard to its climate, a good criterion to go by is its vegetation. Here, besides the fruit trees already mentioned, and which constitute its chief revenue, the banana, the custard apple (annona cheremolia), the guava, and even pine-apples will get to perfect maturity in the open air; the sugar-cane thrives well, and in certain localities will reach to considerable thickness, quite sufficient to encourage its cultivation for sugar. Such conditions are certainly not to be found in any other European climate that I am acquainted with, either personally, or from books. The environs of Faro present the same appearance and cultivation, as we had observed coming from Tanira; the ground rises gradually from the coast in undulating hills, until we reach the Serra de Monchique, which runs from east to west, and divides Algarve from the province of Alemtejo; among these undulations a great deal of flat ground is to be found highly cultivated, and protected from the north winds by the Serra, where many spots might be selected for an invalid's residence. Dr. Kuman, who for many years has resided in Algarve, is an Italian by birth, and says much in praise of the climate; he informed me that the coldest weather was always from the 5th to the 25th of January; according to his account one rarely sees an entire cloudy day; the sun generally shows itself at some time or other of the day, and dries the atmosphere and soil. At Lagos there is an official observatory, but, like many other establishments of this kind, is not situated in a place which will give an accurate idea of the general temperature of the locality or region. According to Dr. Kuman's observations, Faro and its environs are 3° warmer than Lagos, and Lagos is on a par as nearly as possible with Malaga, which until now, was always considered the warmest winter resort in Europe.

The nights are mild, and free from wind. I was once obliged to get up at three o'clock in the morning, and go out to an open balcony at the top of the house, and was surprised at the mildness and balminess of the air; no wind, not even to make my candle-light flicker, and a splendid bright sky. One question, which is somewhat overlooked by some observers who study climates, is the presence or absence of wind, which may not affect the thermometer, but certainly affects the sensibility of the invalid. In Funchal (Madeira) for instance, the wind which prevails nine months in the year is the north and north-east, which cannot reach Funchal owing to the very high mountains which rise abruptly from the town and protect it on that side, so that, in a locality of the same temperature and not screened by mountains, the sensation of heat will be widely different. I believe that the depressing sensation felt by some invalids is owing to this condition of complete shelter, with considerable heat and moisture. In Algarve, though the heat is considerable, yet there is always a free circulation of air, with slight breezes, which render the heat more temperate and less oppressive.

The effect produced on me was certainly very rapid and effective; for although my sojourn there was only of a few days, all cough, wheezing, and dyspnœa ceased; and I am thankful to say, that, although on my return to Oporto, after only a fortnight's absence, the weather was cold and damp, I have felt no return of bad symptoms. I hope next winter to visit the west district of Algarve and the "Caldas" de Monchique (thermal sulphur springs), which, I am told, is a second Cintra. Any interesting observations I may make, I shall be glad to communicate.

TABLE OF TEMPERATURE (FAHRENHEIT.)

	Year.	Winter.	Spring.	Summer.	Autumn.
Madeira (Funchal)	64·96	60·60	62·36	69·56	67·30
Algarve (Faro)	65·00	59·50	66·40	73·50	62·75
Malaga	64·75	56·00	67·33	76·00	60·00

P.S.—Dr. Kuman is travelling in Italy; I am not therefore able to send you the other meteorological observations which he had promised me.

RUSSIA.

(*Report by* Adolphe Wahltuch, M.D., Etc., Etc.,
Assistant Editor.)

Etiology.

Angina Microphytica.—Dr. L. Maroffsky, of Kischeneff, communicates the following:—

G. N., aged 30, a man of feeble constitution, having lately suffered from syphilis, and being subject to frequent attacks of inflammatory affections of the pharynx. On the evening of the 8th September, 1875, he suddenly became hot and feverish, and on the following morning felt cooler after profuse perspiration. He then complained of painful deglutition, and of tenderness of both sides of the neck along the inner edge of the upper part of the sterno-cleido-mastoid muscles. The soft palate appeared very red. On the 10th September the pain increased, and on the 11th and 12th the soft and hard palates were covered with white patches. The patient stated that he was similarly affected twice before, in 1873 and 1874; and the throat affection, considered of a syphilitic nature, in a few weeks improved under treatment by large doses of iodide of potassium and gargles of chlorate of potash. This time such a treatment did not relieve him, and he felt uneasy, as diphtheria happened to be epidemic in the town. The examination of the throat showed considerable swelling of the soft palate and uvula, the latter very elongated and both covered with milky-white patches of half a line in thickness. Passing from the soft to the hard palate could be noticed a bright-red stripe about two lines wide, and the whole hard palate was covered with roundish, white patches with capillary congestion between them. Tonsils and the back wall of the pharynx dark-red or violet, the mucous membrane thick and covered with some white substance of irregular shape. The mucous membrane of the cheeks was red and slightly excoriated. These small ulcers were roundish, reddish-yellow and with yellow elevations round the edges. No enlargement of the lymphatic glands of the neck, no fever; the functions of all other organs in a normal state.

The condition of this affection did not appear to be either of syphilitic or diphtheritic nature; the patches were of a white colour and much thicker, more numerous and differently localised than in diphtheria, and the general health was very satisfactory; there were no enlarged lymphatic glands, as in syphilis. The appearance was more that of aphthæ; and having learnt that the patient during the last three autumns regularly underwent a grape-cure, and each time suffered afterwards from his throat, I suspected this affection to be connected with the grape-treatment.

I then easily removed with the spoon one of the white patches for microscopic examination, and I found amongst the more or less changed epithelial cells, a substance consisting of many layers of thick walled cells with a central nucleus, and between them roundish and oval spaces (vacuala.) Further there were large oval sporules, groups of micrococci, and thick oblong fungiform thread-like bodies.

The microscopic examination of the grapes convinced me of the similarity between the patches in the throat and the skin of the grapes; although the patches presented higher developed sporula and fungi, owing to the higher temperature and the nature of the soil in the human throat.

I recommended my patient to frequently scrape the patches with a piece of lint wrapped round his finger, to gargle with a solution of chlorate of potash, salicylic acid and glycerine, to brush the throat several times a day with a strong solution of alum, glycerine, salicylic acid and alcohol. In a few days he made a good recovery; and the appearance of the throat and mouth was quite normal.—("Sovremennaja Medicina," Warsaw, 1875. No. 31, p. 487—490.)

DIAGNOSIS.

Diagnostic importance of Alveolar Epithelium found in the Sputa.—Dr. Amburger draws, from his observations made in the Maria-Magdalene Hospital in St. Petersburg, the following conclusions:—

1. The presence of pigmented alveolar epithelium in the sputa is of frequent occurrence in persons subject, in the course of their occupation, to the inhalation of dusty particles, such as smiths, miners, ironfounders, cordmakers, and others; but such sputa are due to parenchymatous irritation by the dust particles, and are no signs of inflammation.

2. Alveolar epithelium in the sputa have been noticed occasionally in croupous pneumonia, but more frequently in chronic cases.

3. Large masses of fatty degenerated alveolar epithelium in the sputa are a certain sign of threatening or of already developed parenchymatous pneumonia.—("St. Petersburger Medicinische Wochenschrift." Nos. 12 and 13, 1876.)

Expectoration in Pulmonary Diseases.—In the "Zeitschrift für Biologie," 1875, Dr. Renk publishes the results of his researches in the Munich Laboratory of Prof. Vogt, on the quantity and quality of expectoration in pulmonary diseases, such as bronchitis, pneumonia, and tuberculosis. The editor of the "Sovremennaja Medicina," Prof. A. Walter, gives a very interesting report of these researches, which is worthy of translation from its Russian text:—

"We are generally better acquainted with all the secretions in the human body than with those coming from the bronchial tubes in the healthy or pathological state of the human organism. With respect to the bronchial secretion in disease, we meet with different views in the annals of medical literature. Generally attention is paid only to the quality of expectoration, and with regard to that no more is known than in the time of Hippocrates and Galen. We have not yet given up the terms *sputa cruda et cocta*, although we mention also pus, mucus, and blood; and, with the aid of the microscope, we look to the elastic fibres as a sign of decay of lung-tissue. We know that the quality of the expectoration is that it consists mostly of water (minimum 96 per cent.), and of very little mucin, albumen, and inorganic matter. There is, further, more mucin in chronic bronchitis, and more albumen in acute diseases, such as pneumonia. In the expectoration in pneumonia we also find blood, and in some cases also fat, probably derived from fatty degeneration of pus. Inorganic substances are the same as in the secretions, and iron is present in sanguinary discharges. But when we compare these results with those of post-mortem examinations—when we find in the lungs pneumonic, tuberculous, and bronchitic changes, when we see that, within the lungs, reparations take place not met with in other organs, when all deposits are carried off their tissues—then we cannot but wonder at the opinion of the pathologists of old that these wonderful cures occurring in the substance of the lungs are due to the vast system of canalisation, properly intended for the ventilation of the lungs, but also assisting in carrying semi-fluid substances out of the system. Whatever may be said about the absorption of pulmonary secretions by the blood and lymph, we believe that the favourable issue of many a pneumonia, or hæmorrhagia, or cheesy deposit is due to the expectoration of all diseased matter, and that the mechanism of thus freeing the lungs by expectoration of such diseased matter should be in good working order to ensure curative results in pulmonary diseases. Again, considering what large quantities are expectorated by persons with tuberculosis or chronic bronchitis, one cannot help asking: Are not the patients wasting away from such great and daily losses; and is not, perhaps, the quantity of the expectoration the chief factor in the gradual emaciation of such patients? In vain do we look for an answer to this question in our textbooks, in our literature, or in the lectures of our best clinical teachers.

The chemistry and semeiology of the expectoration are but in embryo if compared with those of the urine. We therefore are especially grateful to Dr. Renk for his investigations in this direction. His main object was to calculate the quantity of expectoration, and of the component parts, and their relation to the general losses in the whole organism of the patient. Thus we should be enabled to judge whether the loss by expectoration causes the general waste, and also whether such loss may be counterbalanced by appropriate diet. Such investigations have to be made with great care, as the expectorations from the lungs are generally intermixed with the secretions of the pharynx, mouth, and nose. The experiments of Dr. Renk were made with regard to the quantity and quality of the expectorations in one case of chronic bronchitis with emphysema, in one case of croupous pneumonia, and in one case of tuberculosis, all three intelligent hospital patients. The expectorations were carefully collected in spittoons of glass, provided with covers to prevent any loss from evaporation. The whole quantity being ascertained, the next step was to estimate the proportion of solid parts, of inorganic matter, of mucin, of fat, of albumen, and of extractive organic matter. The patients were under observation for some months, and their expectorations examined daily, and compared with those of other patients. The patient with bronchitis had been examined twice daily for three months. The daily average of his expectorations amounted to 135·5 grammes, with 4·10 grammes solids, and 1·02 grammes inorganic parts, the organic parts chiefly consisted of mucin; there was no albumen present, except during a few days, when the disease assumed an acute character. Two patients with pneumonia were under observation, in the one case the characteristics of the expectorations were the same as in bronchitis, and in the other the expectorations were very scanty. In the latter case the proportion of solid matter was much greater, owing to an increased quantity of organic matter — namely, albumen and extractive. We therefore believe that in the exudation of pneumonia there must be some chemically unknown substances which are termed extractive organic matter, and which await yet further examination. There could also be detected some fatty matter—about 0·02 per cent. of the whole amount of liquid expectoration, but the fatty degeneration could not be traced by chemical means. The expectoration in tuberculous patients is of great importance. It is generally known that tuberculous patients expectorate a great deal, and there are many drugs to select from in the materia medica with the object of limiting the secretions, as these profuse discharges are thought to be an important loss in the economy of the organism. But this belief is not corroborated by the results obtained by Dr. Renk. A patient with consolidation of both lungs and large vomicæ expectorated daily from

117 to 192 grammes (3 to 4 ounces), or on a daily average of sixteen days about 146 grammes; another patient with caverns in both lungs, 144 grammes daily; a third, only 82 grammes. On an average these patients expectorated about the same quantity as the patient with bronchitis. But with regard to the constitution of these secretions they differed from those of the bronchitic and from those of the pneumonic patients. With respect to the bronchitic and tuberculous expectorations, the latter contained more mucin and extractive organic matter, and also consisted of albumen and fat, probably derived from the admixture of young alveoli with their albumen and fat. But the secretions of the pneumonic patients were richer than those of the tuberculous patients in solid matter, especially in albumen and organic extractive matter. If we take, therefore, the expectorations of chronic bronchitis as the middle of the three, we have in pneumonia an addition of albumen and organic extractive matter, and in tuberculosis an admixture of alveoli in a state of fatty degeneration. It is evident that in tuberculosis the quantity of the expectorations must vary, as the discharge may more or less come from the vomicæ or from the ulcerated bronchial mucous membrane. Now let us consider the daily loss of the organism by way of expectoration, and we find it is in bronchitis 135 grammes; in pneumonia, 122·1; in tuberculosis, 145·2. But the loss of solid parts with the expectorations is in bronchitis, 3·15; in pneumonia, 6·72; and in tuberculosis, 6·75 grammes. The daily loss in water is 117 to 132 grammes, a loss of no great importance, and which can easily be compensated.

"But perhaps the loss of the solids may have an important wasting effect on the body? To answer this question, we have to consider what is the daily loss of organic matter in a healthy organism. We find that a famishing person parts daily with matter decomposed by vital action to the amount of 288 grammes of dry organic substances; a well fed working man parts daily with 550 grammes of dry organic matter. In relation to these, the daily losses of solid organic matter by expectoration in tuberculosis is only 6·75 grammes, and in bronchitis 3·15 grammes, or 1·1 per cent. and 2·3 per cent. of the losses in a famishing body, or only 0·6 per cent. and 1·2 per cent. of a well fed organism. Apparently such a loss is very insignificant, and ought easily to be repaired by slightly increased food. But it is of importance to know what is the nature of the substances lost with the expectoration, as these may be some of more some of less value to the organism. Let us first consider the loss of nitrogen. A famishing person loses daily 12·4 grammes nitrogen; in bronchitis we find 1·8 per cent. of the quantity of nitrogen lost in a famished person, and only 1·1 per cent. of that lost in a well fed individual. In tuberculosis the loss by expectoration is 6·0 per cent. of the quantity of nitrogen lost by a famishing person, and 3·8 per cent. of that lost by a well nourished body. The loss of carbon is very insignificant. The loss of inorganic matter is much greater, 4 to 5 per cent.; but, even in a healthy person, all excess of inorganic matter is carried off by the urine. These losses are too little to account for the wasting of the body, as we generally lose so much with the perspiration, the saliva, the desquamation of the cuticle, etc.

"We have, therefore, no reason to limit the quantity of expectorations in our patients, with the object of lessening their general losses. There is more danger from the retention and decomposition of the secretions. Probably of more importance are the muscular exhaustion from the effort of coughing; the want of sleep; and other symptoms which accompany chronic pulmonary affections."—("Sovremennaja Medicina," Warsaw, 1876. Nos. 7 and 8, pp. 97—99 and 113, 114.)

PATHOLOGY AND MORBID ANATOMY.

Pathology of Aneurism.—Dr. B. Medem's microscopic studies lead him to conclude as follows:—

1. All spontaneous aneurisms have the same beginning and development, viz., bursting in one or more places of the middle membrane, and consecutive vasculo-granular inflammation in the adventitia; the inflammatory process then spreads from the adventitia through the ruptured parts of the media to the intima. This inflammation results in a deposit of connective tissue, which gradually compresses the vessels and converts their contents into pigment trombus. Then follows widening of the ruptures, disappearance of the media, and dilatation of the walls.

2. The size of the aneurism depends on the degree of the development and the progress of the morbid state which lies at the root of its formation. The form depends on:—(*a*) the degree of the progress of the pathological changes; (*b*) the relation of the affected to the healthy and undilated portion of the vessel; (*c*) the topographical position, and the mutual relation of the parts affected, according to their different stages of destruction in the walls of the vessel.

3. The subdivisions of aneurism into *vera*, *mixta*, etc., have no histological justification.

4. Every aneurismal sac, whatever its external shape, always consists of two membranes, the external and internal, and between these are found, more or less, remnants of the middle membrane.—("Journal of Normal and Pathological Histology," etc. M. Rudnew, 1875, pp. 348—353.)

Respiration as affected by Fever.—I. Stolnikoff, of St. Petersburg, communicates the results obtained from some observations made with the object of ascertaining the influence of fever on the respiratory act and on the elasticity of the lungs. They may be summed up as follows :—

In fever the respiratory power becomes much weaker, one-third to one-fifth less, than in the healthy state soon after convalescence. In the same degree the elasticity of the lungs is also diminished. While in the healthy state, expiration, with the aid of the elasticity of the lungs, produces a higher manometric pressure than inspiration, in fever patients the pressure during both acts of respiration becomes the same, or the power of inspiration even gets stronger than that of expiration. The higher the fever and the longer its duration, the lower also becomes inspiratory and expiratory power. As illustration Stolnikoff gives the following observations :—

1. In a patient with typhus fever the manometric pressure varied during fifteen days' illness from 16 to 30 mm., both in inspiration and expiration. After convalescence the expiration was 130 mm., the inspiration 106 mm.

2. In a patient with recurrent fever, during the first and second attacks, inspiration as well as expiration was 26 mm. In the interval between the paroxysms expiration was 100 mm., and inspiration 64 mm.

3. On himself Stolnikoff noticed, in the normal state, expiration 110 mm., inspiration 64 mm. When in a vapour-bath his temperature reached 39·2° Cent., and inspiration as well as expiration fell to 74 mm.—("St. Petersburger Medicinische Wochenschrift," April, 1876, No. 6.)

Extravasation of Red Blood Corpuscles from the Cavities of the Aorta, the larger veins and smaller arteries.—Dr. Stroganoff, of St. Petersburg (Virchow's Archiv., Vol. lxiii.), in describing a case of purpura hæmorrhagica, in which he found the histological phenomena of extravasation of red blood corpuscles from the cavities of the aorta, larger veins and smaller arteries, draws the attention to the following questions :—

1. Is such an extravasation a characteristic of purpura hæmorrhagica only, or does it also occur in other forms of disease?

2. What are the physiological conditions of the organism, which predispose to such a pathological state?

3. What becomes of the red corpuscles after their extravasation into the intima of the large arteries?

His pathological observations and experiments made on dogs lead him to the following conclusions :—(1.) The increased blood-pressure obtained by ligature of the larger arteries causes considerable extravasation of the red corpuscles into the intima; (2.) This phenomenon is also observed in the collateral circulation after ligature of the carotids; (3.) Extravasation often also takes place in the adventitia and media; (4.) Twenty-four hours after the ligature he could find no traces of the extravasated red blood corpuscles; probably they disappeared by way of the lymphatic vessels.—("Medizinische Neuigkeiten Erlangen," November, 1875, pp. 367, 368.)

Sclerosis of the Pulmonary Vessels.—Beresnewitsch ("Dissertation" St. Petersburg, 1876), thus sums up the results of his investigations:—In the cases of sclerosis of the aorta he frequently noticed also sclerosis of the pulmonary artery, especially in the finer branches. Very often atheromatous degeneration spreads also from the aorta to the bronchial arteries, which become obstructed and impermeable. The intensity of the affection in the pulmonary vessels generally corresponds with the degree of degeneration of the aorta. The obstruction in the pulmonary circulation may result in atrophy, emphysema, and cirrhosis of the lungs."—("St. Petersburger Med. Woch.," No. 16, 1876.)

Giant Cells in Tubercles.—In "Virchow's Archiv.," Vol. lxiii., Prof. Brodowsky, of Warsaw, states the results of his recent investigations on the origin and nature of giant cells. He found them to be connected with changes in the blood-vessels, and to originate from the blastema of the vessels. He considers the formation of the giant cells as the product of abnormal activity of the blood-vessels, characterised by hypertrophy of some parts of protoplastic blastema of these vessels, and by a formation of numerous nuclei in them. He further proposes the name "Angioblast" for all such protoplasmic formations arising from germs of new vessels.—("London Med. Rec.," Sept., 1875, p. 522.)

MEDICINE.

Idiopathic Acute Endocarditis with Embolism of the Left Middle Cerebral Artery.—Dr. Alfred Sokolowski, of Warsaw ("Deutsche Medicinische Wochenschrift," Dec. 18, 1875), reports the case of a servant-girl, aged twenty-three, whose illness commenced with alternate heats and chills and general malaise. The physical examination of the abdomen and lungs detected nothing abnormal. The extent of the cardiac dulness was normal. A soft systolic friction sound was heard at the apex; the second sound was followed by a murmur, less distinct, at the base of the heart. On the third day there were signs of slight enlargement of the right ventricle, and accentuation of the second tone of the pulmonary artery. General feverish state increased every evening. After a fortnight, she became paralysed on the right side, lost her speech, and the left corner of her mouth was drawn aside; there was complete anæsthesia in the paralysed parts, and involuntary passage of urine and fæces. All the cerebral symptoms lasted only 48 hours, after which speech, sensation, and movement returned. But she got gradually weaker, the fever increased, the spleen enlarged, and she died in about five weeks after first becoming ill.

Autopsy.—The arteries of the brain were healthy, except the middle cerebral artery on the left side, which contained a semi-transparent cartilaginous embolus. Right side of brain healthy, but pale; so was the left, except that the cortical substance of the island of Reil, the grey matter of the corpus striatum, and of its lenticular nucleus were smaller, harder, and yellower than normal, and had a reticulated appearance—signs of softening, with subsequent cicatrisation. The heart was greatly enlarged, especially on the right side; the walls of the left ventricle were not thickened; numerous yellow spots under the endocardium. The edges of the mitral valves were much thickened, and covered with coagula of blood, some as large as a walnut; these clots were all attached to ulcerated patches in the thickened upper borders of the valves. The right ventricle was much enlarged, otherwise normal, as were the aorta and pulmonary artery. The spleen was thrice its normal size, dark-red, and had numerous sharply-bordered "blocks." The liver was normal. Kidneys enlarged with small infarctions, forming the bases of small cavities. All other organs healthy.

Dr. Sokolowsky remarks that primary acute endocarditis is very rare, and considers the suddenness of the cerebral symptoms as important, and their disappearance, after 48 hours, of extreme interest.—("London Med. Rec.," April, 1876, pp. 160, 161.)

Paralysis of Crico-arytænoid Posterior Muscles.—Dr. E. Hansen, of Revel, communicates a case of paralysis of the glottis-openers, of syphilitic origin, treated by him successfully with mercurial inunctions and internal doses of iodine. Marie Olberg, aged 31, a country-woman, two years ago had syphilitic ulcers in the genitals, which healed in a fortnight after local applications. Some months later, she complained of difficulty in swallowing, hoarseness and pains in the limbs, and general weakness. She, however, got better after two years' illness, when she began to suffer from dyspnœa, superficial roundish sores, with elevated and inflamed edges on the forehead and on the lower lip of the mouth, and slight swelling and tenderness of the submaxillary glands, very slight hoarseness and cough, and a laryngeal whistling noise, accompanying difficult respiration. The laryngoscopic examination presented the following appearance:—The epiglottis irregular-shaped, owing to a deep cicatrix on its left free edge; the mucous lining everywhere deep-red, infiltrated and thick; the vocal cords very vascular, and in the back part of the left vocal cord could be seen a small, yellowish, lardy ulcer. In normal respiration the glottis remained nearly closed, leaving a very narrow slit, but the back or cartilaginous part of the glottis presented a narrow, triangular opening, the inner edge of the cords vibrating feebly, and the arytænoid cartilages remaining almost immovable, and close to each other during ordinary breathing. But quite different is the laryngoscopic view in forced breathing. During inspiration, the vocal cords approach and are drawn inwardly, whilst, during forced expiration, the entire glottis widens nearly to half its normal width. During intonation of a vowel the cords touch each other for a moment, but soon separate and leave a narrow-shaped slit, and remain in such position during further vocalisation. The diagnosis was paralysis of the crico-arytænoid posterior muscles with so little phonic paresis that it could be considered as a rare case of isolated palsy of the glottis-openers. The laryngeal examination presented no difficulties, as there seemed to be considerable anæsthesia of pharynx and larynx. The contact of the laryngoscope, with the mucous membrane, and even the application of the laryngeal probe to the vocal cords causing no reflex action. The treatment consisted in daily frictions with mercurial ointment (ʒj. pro die) and iodine internally. The dyspnœa ceased, the ulcers on the forehead, mouth and laryngeal cord healed, and the patient completely recovered.—("St. Petersburger Med. Woch." No. 6, 1876.)

Pneumonia Infantum.—Dr. Rautenberg, of St. Petersburg, derives from his observations of pneumonia in children the following conclusions :—

1. The division into catarrhal and croupous forms is justified neither by microscopic studies nor by macroscopic examinations of the dead, nor by the clinical observations of the course of the disease.

2. The definition of lobar pneumonia as croupous and that of lobular as catarrhal is incorrect.

3. We can speak merely of a greater or smaller focus of pneumonia, and not of lobar or lobular inflammation.

4. Pneumonia consists of a not yet sufficiently investigated tissue-change, which leads to a deposit of leucocythes from the vessels into the pulmonary alveoli, and the further metamorphosis of these deposits.

5. The presence of fibrine in the exudation of pneumonia is not a constant and characteristic phenomenon, but an accidental one, and is due less to the inflammatory process than to other not yet sufficiently known conditions, such as epidemic peculiarities, constitutional states, etc.

6. In considering the forms of pneumonia, especial attention should be given to the etiological factors; and thus we can distinguish between a genuine pneumonia, having a strong and cyclic course, and secondary pneumonia.

7. Such a division of pneumonia, based on etiology, will favour

rational therapeutics; the treatment in genuine inflammations will be expectant and symptomatic, whilst in secondary pneumonia, dependent on local and general weakness, stimulating and tonic remedies will prove beneficial.—("Oesterreichisches Jahrbuch für Kinderheilkunde und physische Erziehung," 1875, Vol. viii.)

SURGERY.

Lesion of the Heart by a Ball from a Revolver: Cure.—Dr. Ernst Anders, of Dorpat, reports the following interesting case in the "Deutsche Zeitschrift für Chirurgie," vi., p. 191, 1875:—

A young man had attempted suicide with a revolver, and the ball entered the cardiac region; hæmorrhage soon ceased, distressing dyspnœa abated, and the patient could travel a distance of about ninety-six miles to the clinic of Professor Bergman, in Dorpat, where he came under observation on the eighth day after the injury. A roundish ragged wound corresponded with the spot of the heart-beat, and responded to the rhythmic movements of the heart; there was short breathing, anxiety and giddiness; temperature 38·2° Cent. Respiration 42 per minute. The cardiac dulness extended to the upper edge of the third rib, the left edge of the sternum, and 1 centim. to the left of the mammillary line. At the back, the lower portion of the left side presented dulness but no pectoral fremitus; pericardial friction-sounds were limited to the fourth intercostal space. There was, therefore, effusion in the pericardial and pleural sacs. The following two days the cough became more severe, the pulse more frequent; evening temperature 39° Cent. On the fourth, the dulness spread at the back up to the angle of the scapula, accompanied with pectoral fremitus and bronchial breathing in the upper area of dulness; the cardiac dulness extended 1 centim. to the right of the right sternal edge. The effusion increased and there was also pneumonia in the left lung. On the fifth day the pericardial effusion spread 4 centim. to the right of the right sternal edge; night sweats. From that time an improvement took place, the effusion gradually diminished; pericardial friction-sounds disappeared. On the twentieth day after admission the wound was healed, but in its place there was a cicatrix, which with each systole became retracted into the thorax; the organs of respiration were quite normal; the cardiac dulness occupied the normal area; the heart-beat could be felt distinctly in the fourth and feebly in the fifth intercostal space; the first tone of the heart was normal in the recumbent and doubled in all other positions; this phenomenon was very slight in the upper part of the aorta.

Dr. Anders adds to this fully reported case the subjoined remarks:—

"The condition of the heart-beat is of pathological importance. The absence of any disturbance of circulation excludes perforation of the cardiac wall with effusion of blood into the pericardium; but nevertheless there might have been a lesion of the cardiac wall as observed in some other cases. In all reported similar cases, where life continued after the injury, pericarditis was present. The anatomical seat of the wound is of importance, which in the above-mentioned case occupied a spot corresponding nearly with the position of the apex; the direction of the wound was an upward one, the ball, therefore, must have come in contact with the heart itself; the hæmoptysis points to injury of that part of the left lung which covers the heart. The retraction of the cicatrix in the thorax, isochronous with the cardiac movements, confirms the existence of cardiac lesion, which must have been in some part of the apex; and we therefore conclude that lesion of the apex of the heart may be considered favourable with regard to prognosis."—("Schmidt's Jahrbücher," Vol. clxix., 1876, pp. 165, 166.)

MATERIA MEDICA AND THERAPEUTICS.

Salicylic Acid.—Dr. F. Weber, of St. Petersburg ("Allgemeine Medicinische Central Zeitung," March, 1876,) regards salicylic acid as a valuable addition to the materia medica, as an effectual febrifuge and antiseptic. The form of administration was a solution of equal parts of phosphate of soda and salicylic acid (one drachm of each) with syrup and water (℥ v.). He has given the acid in nine cases of diphtheria in women and children. Recovery in all his cases was very rapid. He also used the acid in three cases of influenza, in two cases of chronic pneumonia, and in one case of extensive catarrhal pneumonia with high fever, and in all these cases the fever abated and the patients made a safe recovery.—("Lond. Med. Journ.," May, 1876, pp. 196, 197.)

Effect of Salicylate of Soda upon the Circulation.—Dr. Dubelir communicates the results of his experiments on animals with subcutaneous injections with salicylate of soda. In frogs, after the injection into the skin of the abdomen of 1 to 2 grains, he noticed diminished sensibility, and lowering of the heart action to 4 to 6 beats a minute, and, finally, to complete cardiac inaction. In dogs, injections into the jugular vein of ¼ to ½ gramme of a solution of salicylate of soda (10 to 20 in 100 Aq.), produced a lowering of the beats, which gained in intensity, increased blood-pressure, and gradual return to normal action of the heart. Repeated injection intensifies the above effects, and is followed by a much slower recovery. The more concentrated the solution, the more persistent and stronger the effects. The injection of fatal doses (such as 1 grm. to every kilogram of weight) frequently repeated (every five minutes) produces infrequent and strong heart-beats, increased blood-pressure, and sudden stoppage of the heart; but with large doses injected at longer intervals (every 2 to 3 hours), the beats of the heart, at first slow, soon become accelerated and feebler, the increased blood-pressure diminishes, and the heart gradually ceases to contract, and no more responds to electric or other stimulants. These experiments confirm the clinical observation, that salicylic acid affects the pulse, which becomes slower, but fuller and stronger, and prove the danger of repeated large doses.—("St. Petersburger Medicinische Wochenschrift," No. 8. April, 1876.)

Action of Mercury.—Dr. Dubelir, of St. Petersburg ("Gazette Médicale de Paris"), concludes from experiments made by him on the action of mercury that:—

1. Mercury is a cardiac poison.
2. Death when produced by mercury is due to paralysis of the heart.—("Lond. Med. Rec.," June, 1876, p. 267.)

Treatment of Croup.—1. Dr. Sawostitsky ("Verhandlungen der Chirurgischen Gesellschaft zu Moskau, 1875, I. Th.) reports 100 cases in which he performed tracheotomy, and recommends as an after treatment to keep the patient in a room filled with moist vapour produced by hot water spray. To completely destroy the croupous membrane he used the spray of lime-water directed through the canula to the interior of the larynx.—("Annali Universale di Medicina e Chirurgia," Ottobre, 1875, p. 84.)

2. Dr. A. Oppenheim, of St. Petersburg, is of opinion that emetics may be used only in the commencement of croup, but never in the later stages; tartrate of antimony and sulphate of copper should never be given; the best emetic he considers to be apomorphia used subcutaneously. He further states that mercurial preparations, depletion, or pencillings with caustics are injurious. He recommends inhalations of lime-water or of hot water steam, ice applications, the internal administration of carbonated alkali preparations, and lastly, laryngo-tracheotomy.—("Oest. Jahrb. für Kinderh. und phys. Erziehung," 1875, Vol. viii.)

3. Dr. Musicantoff speaks highly of repeated outward application of collodium cantharidatum to the skin of the throat in all cases of croup or diphtheria when emetics give no relief. He considers such application to be preferable to the operation of tracheotomy, and relates numerous successful results obtained by this method of treatment in dangerous cases of croup and diphtheria.—("Sov. Med." Warsaw, Nos. 22, 24, 25. Sept., 1875, pp. 344-392.)

Treatment of Nasal Catarrh by a Continuous Current of Liquids.—Dr. L. Marievsky, of Kischeneff, uses, for the treatment of acute or chronic nasal catarrh, a continuous current of a weak solution of permanganate of potash, or salicylic acid, or sulpho-carbolate of zinc, by means of a very simple apparatus. A thin tube of indiarubber, about 28 inches long, is connected on one end with the narrow part of a glass funnel, and the other end with a wooden or bony nose-piece, fitting into one of the nostrils; the solution is poured into the funnel, held above the level of the patient, and made to pass through the indiarubber tube and nose-piece into one of the nostrils; the patient is told to open his mouth and slowly to inspire, when the fluid will flow out of the other nostril, and thus wash out all the parts within the nasal cavities. Dr. Marievsky reports numerous successful cases by this method of acute and chronic nasal catarrhs in all ages. He further mentions a case of epistaxis in a child, cured by the continuous current of a weak solution of alum and water. — ("Sov. Med.," Warsaw, Nos. 21, 30, VIII., 1875, p. 329.)

BALNEOTHERAPEUTICS.

Effect of Baths and Ablutions of various Temperatures on the Blood-pressure.—P. Rewnow ("Dissertation," St. Petersburg, 1876) made experiments on curarised dogs, and placed them in water-baths of 20° to 45° Cent. (68° to 113° Fahr.) The blood-pressure was estimated by aid of the manometer of Setschenow. His observations lead the author to the following conclusions:—Baths having the temperature of 30° to 35° Cent. (86° to 95° Fahr.) have no effect on the blood-pressure. Warm baths of more than 35° Cent. (95° Fahr.) at first increase the blood-pressure, which then rapidly becomes much lower. The higher the temperature of the water, the more marked is also such an effect. After the warm bath, ablutions made with cold water produce an increase in the blood-pressure, followed again by a diminution which is in direct ratio to the low temperature of the ablution and to the high temperature of the bath. Baths under 30° Cent. (86° Fahr.) increase the blood-pressure, and such increase continues till the temperature of the body of the animal commences to sink below 98° Fahr. After the bath, the blood-pressure diminishes. With an increased temperature in hot baths above 35° Cent. (95° Fahr.) the blood-pressure rises also. Rewnow made some further experiments by cutting the nervi vagi or the spinal cord in the region of the second cervical vertebra. The section of the vagi did not interfere with the effects of the bath or of the blood-pressure, whilst the section of the spinal cord caused diminished blood-pressure, upon which neither hot nor cold baths nor hot nor cold ablutions afterwards produced any effect. Rewnow, therefore, concludes that the changes of the blood-pressure in baths or ablutions depend, to a less degree, on the heart's action, and more so on the cutaneous sensory nerves, producing a reflex action on the vasomotor nerves.—("St. Petersb. Med. Woch.," No. 15, 1876.)

MISCELLANEOUS.

Apparent Death of Children in Railway Carriages.—In a third-class carriage in Russia lately two children fainted away and were in a state of apparent death. The cause was found in the practice of closing, during the severe winter frosts, all communication with the outer air, and in consequence in the accumulation of carbonic acid and organic particles in the internal carriage-air.—("Sov. Med.," Warsaw, 1875, No. 40, p. 637.)

Development of the Chest during the Growth of the Body in Soldiers.—Measurements undertaken by Dr. A. Archipof on growing soldiers, give amongst others the following noteworthy results :—

1. The absolute circumference of the chest increases with the general growth.

2. The relative circumference of the chest is in inverse proportion to the stature—*i.e.*, the taller the subject the smaller also the circumference of the chest.

3. The proportion of weaker built chests is in direct ratio to the growth of the individual: thus a weak chest is more frequent in taller persons.

4. The development of the chest increases between the ages of twenty to twenty-five, and ceases with the general growth at the age of twenty-five.—("Sov. Med.," Warsaw, 1875, Nos. 29 and 30, pp. 455—473.)

Condensed Air.—In his elaborate treatise on Aerotherapeutics (St. Petersburg, 1876), Dr. Simonoff gives the following conclusions on the physiological effects of condensed air:—

1. Condensed air diminishes the susceptibility of the nervous system to external impressions, and often induces sleep.

2. It solidifies by compression all those tissues and parts of the body on which it directly operates.

3. It diminishes in those parts the quantity of blood.

4. Lowers the secretive and strengthens the absorptive power of the parts.

5. Increases the flow of blood to the internal organs, which are not exposed to the direct pressure of the condensed air.—("Sov. Med.," Warsaw, 1875. No. 34, pp. 536—538.)

AUSTRIA.

(*Report by* Dr. Langer, *Private Assistant to* Professor Schrötter, of Vienna. Translated by Mr. James T. Hinton, of Guy's Hospital.)

Anatomy and Physiology.

On some Abnormal Ligaments in the Human Larynx which have never yet been described.—Dr. Max Bresgen found, in dissecting the transverse arytenoid muscle, a double ligament, which extended on each side from the apex of the arytenoid cartilage downwards over the pharyngeal surface of the arytenoid muscle to the upper edge of the cricoid cartilage, and was inserted near the middle of the posterior surface of this cartilage, on the left side about half way down, on the right as far down as its second fourth.

The two insertions of this ligament into the arytenoid cartilage were unlike, inasmuch as on the right a small segment of it passed on to find attachment in the cartilage of Santorini, while the corresponding part on the left was about 1 millimètre shorter than its fellow.

The right arytenoid cartilage was bent backwards almost to a right angle, and even cracked across its middle.

The relations of these abnormal structures would render it probable that even during life abnormal conditions existed in the larynx: for instance, the crico-arytenoid muscle would be much impeded in its action—more especially on the right side—by the tensely-stretched ligament.

An examination by means of the laryngoscope would have almost certainly induced one to diagnose some paralysis of the muscle; while an incision carried behind the arytenoid cartilage would have sufficed at once to put an end to the suffering.

Dr. Bresgen supposes these ligaments to be a congenital anomaly, and that they may often be found, though usually of less size than in his case. He considers them to be really fibres belonging to the fascia of the subjacent muscle.

In a second larynx, exhibited by Dr. Zuckerhandl, there was found a single unsymmetrical ligament, which passed from above inwards in a diagonal direction outwards and downwards over the thyro-hyoid muscle. This ligament was so tightly stretched that the muscle on this (the left) side was about ½ centim. shorter than that on the right, and the hyoid bone was drawn down slanting to the left; moreover, the thyroid cartilage showed a slightly smoothed surface on the part corresponding to the pressure.—("Anzeiger der K. K. Gesellschaft der Arzte in Wien," 1876, No. 14.)

On the Structure of the Cartilage of the Eustachian Tube (by Dr. Victor Urbantschitsch, Teacher of Aural Surgery in Vienna).—The cartilage of the Eustachian tube varies much in structure, both in reference to the cartilage cells and to peculiarities in the intercellular substance. These variations, which have been often mentioned but never clearly defined, bear, without doubt, a definite relation to the age of the subject under examination.

The intercellular substance of this cartilage in fœtal life is structureless, although in the adult it is granular and striated: in fœtal cartilage, moreover, the cells lie closely packed together, and but little of the intercellular substance is seen, while in individuals advanced in years the cartilage-cells of the median and lateral plates are gathered together in little groups with a considerable amount of intercellular material. Besides these two forms there are sometimes found others which may be regarded as gradations, in proportion to advancing age, between one arrangement and the other.—("Wiener Med. Jahrbücher," 1875, Vol. iii.)

On Fistula Colli Congenita, and Diverticula of the Œsophagus (by Prof. Weinlechner.)—The causation of this abnormality must be sought in the embryonic life-processes and the development of the bronchial arches and fissures in the fœtal neck; for it is to an arrest of the development of these arches or pharyngeal visceral plates that "congenital fistula of the neck" must be ascribed.

These fistulæ often occur on both sides at once, but single ones are oftenest found on the right; they may be complete or incomplete, in the latter case as often internally as externally.

Ordinarily the outer opening of the fistula will be found near the anterior (sometimes the posterior) border of the sternal portion of the sterno-cleido-mastoid muscle, and about ½ to 1″ above the clavicle, much less frequently under the angle of the jaw. Often the fistula will open exteriorly in a little slit which is situated on the summit of a protuberance about the size of a pea. From this point it runs upwards and inwards over the hyoid bone to the palato-glossal arch; during its course it may be felt in the neck like a cord, as large as a crow-quill.

These fistulæ secrete a small quantity of a clear fluid, and now and then, in exceptional cases, pus; they give but little trouble as a rule, the presence of such a fistula being often unknown until it has existed some time. Their diagnosis from similar fistulous openings is not difficult if their position, direction and secretion be recognised.

The treatment of such fistulæ is extremely unsatisfactory; therapeutical remedies are almost useless. As a rule, at any rate when complete, they had better be left alone, for, although they are said to have been cured by injections of iodine, the author has never succeeded with this mode of treatment.

Incomplete external fistulæ are hardly more amenable to treatment; cauterization has been tried, indeed a fistula has been filled with pieces of solid caustic without result; the extirpation of the entire fistula is therefore recommended when possible, especially if closure of the external opening with retention of pus has taken place. In two cases the author was able to dissect-out the whole of the interior of the fistula, and in both with complete success. Up to the present time five cases have been recorded by Professor Weinlechner, of which three were incomplete (one on the left side and two on the right), and two complete. Of the three incomplete, one was in a little child; one in a boy of 12 years (which was one and a-half inches long, and extended over the hyoid bone—it was thoroughly extirpated;) and one in a man. In two cases the fistulæ were on both sides; in one of them that on the right side was complete, that on the left incomplete, while in the other the converse of this obtained. The first case, described by Professor Meyer, was distinguished by the fact that the patient had also an œsophageal diverticulum. The second case, that of a girl 13 years old, is still under observation.—("Anzeiger der K. K. Gesellschaft der Artze in Wien," 1875, No. 30.)

Researches on the Variations in the Force of Blood-pressure in the Systemic and Pulmonary Circulations (by Dr. Hofmahl).—In order to measure accurately the force of the blood-pressure in the systemic circulation, Dr. Hofmahl fastened a canula in the common carotid artery, connected it with a manometer, and registered the pressure on a "Khymograph." He then tied another canula in one of the large branches of the pulmonary artery, and was thus enabled to estimate and compare the fluctuations in the pressures.

The following are some of his observations:—

1. If the breathing of an animal be stopped until the vagus becomes irritated by the deoxydised blood, the excitation of the nerve will affect both sides of the heart synchronously; but with this difference, that the pressure during the diastole of the right heart is almost nil.

2. But if the vagus be cut through on both sides, and the breathing stopped, the operator instantly sees that he is dealing with two systems of vessels, for the wave-lengths of the two circulations no longer correspond.

3. Let an animal be taken and both vagi cut, then let breathing be suspended until the blood-pressure in the systemic circulation has considerably fallen; when the following remarkable phenomenon will

be noticed: the right heart will pulsate so much more frequently than the left that the difference will often reach the proportion of two to one.

4. If a sensitive nerve be cut, and the central end irritated, the pressure in the systemic arterial system will rise very considerably, while that in the pulmonary vessels rises also, but to a much less degree. The causation of this latter phenomenon, whether it be produced by a contraction of the small pulmonary arteries, or the result of some excitation transmitted from the systemic circulation, must remain unexplained.

5. If the vena cava ascendens be compressed, a very considerable diminution in the blood-pressure of the systemic circulation will result; the pressure in the pulmonary vessels is also (although very slightly) diminished.

Hofmahl has also measured the pressure in the veins of the systemic circulation. Although experiments of this nature were only possible with the veins of the thorax, they were here so successful and striking that the pressure rose higher than could be registered on the drum of the "Kymograph."—("Medicinische Jahrbücher," Vienna, 1876.)

Experimental Researches on Pathological Changes in the Lungs following wounds of the Brain-Substance (by Dr. M. Heitler, Vienna).

Heitler announces that some recent observations communicated by Nothnagel, Charcot, and Ollivier, have shown that wounds of, or pathological changes in particular parts of, the brain, especially such conditions as apoplexy and tuberculosis, may cause hæmorrhage into the lungs, varying from a slight sub-pleuritic or pulmonary ecchymosis to an extravasation involving the whole of a lobe. This curious consequence of brain lesions depends, according to Schiff, on paralysis of the vaso-motor nerves; while Brown-Séquard ascribes it to a sudden contraction of the pulmonary vessels.

Heitler gives this caution with regard to his experiments, that only extravasations of considerable extent should be considered as due to brain-disease, as the lungs of healthy animals, killed by the knife or chloral hydrate, almost always showed some ecchymosis.

Superficial incisions into the cerebral hemispheres and vermiform process of the cerebellum leave the animals fairly intact; deeper lesions caused death in about three or four days. Wounds of the base of the brain, or the Optic Thalami were only survived twenty-seven hours at the most, while wounds of the Corpora Quadrigemina or of the peduncle, or superficial incisions into the rhomboid sinus were fatal in a few days.

Examination of the lungs disclosed not only hyperæmia of their tissues, but also small pulmonary and subpleuritic extravasations, which were either scattered irregularly through the lung or were collected into groups; they were found, for the most part, in the inferior lobe: above and around the periphery somewhat sparsely scattered; below and towards the centre of the organ they were far more numerous.

Ordinarily both lungs were affected, although unequally; the worst being not seldom on the side corresponding with the wounded hemisphere. Moreover, hæmorrhage was also observed in other parts of the body, as in the liver, stomach, and lower half of the pelvis. Especially noticeable were those hæmorrhages which resulted from lesions of the base of the brain, or of the inferior angle of the rhomboid sinus. In the former lesion inflammatory mischief was plainly perceptible in the lung; in the latter an entire lobe was filled from centre to periphery with hæmorrhagic patches.

Heitler deduces from the foregoing experiments that—1. Lesion of *different* parts of the brain may produce *identical* morbid changes in the lung: 2. That lesions of certain parts of the brain were followed by *no* morbid change in the lungs: and, 3. That the medulla oblongata when wounded was (contrary to the hitherto received belief) capable of setting-up intensely active changes in the pulmonary tissues.—("Med. Jahrb.," 1875.)

The Collection and Measuring of the Tidal-air from both the Healthy and the Sick; and the Determination of the Amount of Carbonic Acid and Oxygen contained therein (by Dr. Gustav Wertheim, Professor of Medicine, and Physician in Vienna).—To carry-on experiments of this kind with success, it is highly important to provide accurate mechanism and apparatus for the collection and storing up of the various gases, etc. Dr. Wertheim caused to be constructed for this purpose the following apparatus: A mask of plaster of Paris fitting accurately to the nose, the anterior half of the cheeks and the chin, and guarded at its edge of contact with the face by a shield of india-rubber, which was provided with two apertures carrying valves which opened in opposite directions. One of these served for the entrance, the other for the exit of the air to be respired. To the latter of these apertures was attached a tube of india-rubber of 15 millimetres calibre and 1 metre long, and whose walls had a thickness of 5 millimetres. The mask, when used, was faced with a little putty, made to the proper consistency with oil, in order to ensure perfect contact with the face.

At each experiment the tidal air was collected twice, once for the determination of the absolute quantity breathed in a given time, and once again for the calculation of the carbonic acid and oxygen. For the first calculation the mask was fixed carefully on the face by means of the putty; then the tube corresponding to the exit opening was attached to an india-rubber bag, provided with a cock, and previously emptied of air by being tightly rolled up. The patient now breathed during a fixed time (two minutes in all Dr. Wertheim's experiments), and the whole of the tidal-air during that period was collected in the sack, which was made to contain 34,000 cubic centimetres.

For the volumetric measurement of the air thus collected, he used an apparatus made from one suggested by Professor A. Pierre. This was a glass bell (made to contain 7,000 cubic centimetres, and graduated), which was placed mouth downwards in a large glass cylindrical vessel filled to the brim with water. The bell was provided with a neck-like opening on the summit of its dome, through which ran a glass tube fixed in a caoutchouc stopper, and bent to a right angle, so that its other end could be fastened firmly on the india-rubber sack. The bell was now gently raised by means of a cord-and-pulley arrangement, as nearly as possible to the surface of the water, the cock between the sack and ball opened, the air allowed to pass into the latter, and its volume read off from the scale.

The cock was then again closed, the sack separated from its connection with the bell, and the latter again sunk to the bottom of the water; the whole process was then repeated until the surface of the water inside the bell and that in the cylinder stood at the same level, the true volume of air (allowing for the temperature of the body) could then be calculated from the scale by known formulæ.

In order to estimate the amount of carbonic acid and oxygen in the air, the exit-tube before-mentioned was fixed to one neck of a Woolfian flask, while to the other a tube of similar calibre of ½ metre long was attached, whose end, cut obliquely, dropped into a glass vessel which contained a column of salt water three centimetres in height. The patient was then directed to breathe gently through the mask for about ten minutes, which time suffices to drive all atmospheric air from the flask and tubing. At the expiration of that time the flask and second tube were closed by means of cocks and forceps, and set aside for the examination of its contents. The carbonic acid was estimated by Pettenkofer's method, the oxygen by that of Bunsen.—("Wiener Med. Woch.," 1876. Nos. 3, 4, 5, 6.)

ETIOLOGY.

The Etiology of Bronchial Asthma (by Dr. Schrutz, of Vienna).—The author agrees with Weber and Horch in considering the complaint to be due to some vaso-motor neurosis, and has tried nitrite of amyl with his patients unsuccessfully; chloral hydrate was followed by better results.—("Allgemeine Zeitung," 1876, Nos. 4, 5.)

Hæmoptysis in Old Age (by Dr. E. Rollet, Vienna).—Bleeding from any part of the respiratory tract is rare in old age. Even inflammatory conditions and the somewhat rare tuberculoses of aged patients run their course in by far the greater number of cases, without sanguineous sputa. Hence bleeding from the lungs in old and previously healthy individuals points, as a rule, to other etiological conditions; for, although in the early years of life hæmoptysis is far from uncommon, yet the sufferers from it for the most part either gradually recover, or die before middle life. But the aged are still liable to many diseases which are capable of producing hæmorrhage from the lungs, such as purpura, scurvy (which is sometimes epidemic in almshouses), alcoholism, cachexia from syphilis, cancer, mercurial salivation, and aneurism or other diseases of the vessels of the bronchial mucous membrane.

Moreover, in bronchitis of the aged the sputa may be very much blood-stained; or even pure dark blood may be coughed-up (sometimes in large quantities, from one to two hundred grammes at a time), though this loss is never followed by such grave disturbances of the system as would result in younger persons. On the other hand the so-called pulmonary apoplexy (generally caused by atheroma of the pulmonary arteries) is often so rapidly fatal that no blood is coughed-up at all.

Lastly, we may mention some traumatic causes, which, though relatively unimportant, yet, when coincident with some abnormal conditiens of the vessels, are capable of producing bloody sputa: such are blows, stabs, falls, spasmodic coughing, and, sometimes, undue stimulation of the heart's action.—("Med. Presse," 1875.)

On Idiopathic Dilatation of the Heart, and its Consequences (by Dr. Friedrich Ganghofer).—After a brief historical review of the subject, Dr. Ganghofer says that there are a number of cardiac affections which should be regarded as more or less idiopathic, and apparently not resulting from any obstruction to the circulation; at any rate, it often happens that no trace of such obstruction is discoverable at the post-mortem table unless, by a straining of probabilities, it be sought in a series of unimportant pathological changes.

The author then mentions the pathology, anatomy, etiology, and pathogenesis of idiopathic dilatation of the heart, especially considering those diseases which have been regarded by other authors from time to time as idiopathic dilatation with hypertrophy, as idiopathic fatty degeneration, relaxation or over-excitation of the heart, and which were supposed to be connected either with a general condition of fatty degeneration of the muscle, or some more occult pathological condition.

The diseases under consideration were as follows:—

(*a.*) The most common is the peculiar dilatation due to old age, which is unaccompanied by any degenerative process, or disturbance to the nutrition of the heart substance.

(*b.*) Senile emphysema often causes dilatation with hypertrophy (eccentric hypertrophy) first of the right, and later of the left ventricle.

(*c.*) Diminished elasticity of the arteries.

(*d.*) Nutritive disturbance affecting the heart's substance. Senile involution, as also dilatation may appear in relatively young persons, and many cases, described by their authors as myopathic, were, to a certainty, cases of idiopathic dilatation.

(*e.*) Cardiac dilatation may also occur (besides the before-mentioned conditions) as a consequence of acute infectious diseases, especially typhus. In such cases the patients ordinarily sink from paralysis of the heart, before there is any appearance of dropsy. Moreover, degeneration of the heart's substance often develops itself as in the voluntary muscles; and, although it is quite possible for the organ to recover its tone and vigour, yet any slight excitation may change the process of regeneration into one of atrophy, and a permanent dilatation will result. This is frequently the case with soldiers, who, often after illness, such as fevers and diarrhœa, are compelled to endure long marches and other great bodily exertion.

(*f.*). As a consequence of nervous disturbance, reflex nervous processes may result in dilatation of the heart, a fact proved by the cardiac changes in Basedow's disease, which has been shown to be an obscure disease of the sympathetic; but nerve-changes and neuroses of a much less serious character are capable of causing dilatation and hypertrophy. From enlargement of the cavity of the heart, it necessarily often happens that insufficiency of the valves is induced.

In order to obtain a clear theoretical idea of these abnormal conditions, the anatomical and physiological facts must be well understood; for example, the diameter of the various orifices, and the proportion between them and the surface of the valves.

Dr. Ganghofer gives the measurements of Perls, Peacock, Wolff, Neucourt, Bizol, and himself, also his method of measuring.

He first measured, in a large number of normal hearts, the circumference of the orifices, and the length of the valves from base to tip, the auricle and chordæ tendinæ being removed before each measurement. The ostium was then cut through, and accurate measurement taken of the extended valves with their ring of insertion.*

The insufficient closure of the cardiac valves is most intimately connected with the causation of murmurs, of a rubbing character. Ganghofer explains the presence of such murmurs, when no stenosis exists, by the hypothesis that when the heart is working vigorously the blood-stream passing, under high pressure and therefore with great rapidity through the auriculo-ventricular opening, is broken-up into differently directed currents, whose friction against the walls of the heart and against each other suffices to produce the peculiar sound. Thus the consequence of insufficient closure of the auriculo-ventricular valves will be a constant to-and-fro murmur between auricle and ventricle.

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* The author has prepared a table to estimate the area of the tricuspid valves.

Other conditions, resulting from idiopathic dilatation and hypertrophy of the heart, are those changes in its tissues and chronic inflammatory processes which are connected with the valves, especially those of the left venous openings and of the aorta.

In considering the course of these diseases we may divide them into two groups.

Firstly, those of young and adult life (and here we must bear in mind the influence of age, sex, mode of living, and constitution); and secondly, those of senility.

In the first group the sufferers are mostly men, young work-people or soldiers, who are forced to endure severe exertion; and suffer from fatigue, palpitation, and pain in the cardiac region: (definite cures have been asserted to be possible here).

The senile heart is found in about the same number of cases in both sexes, and this condition is less influenced by social position and mode of living than the others.

There are no pathognomonic signs for the diagnosis of idiopathic cardiac dilatation. The symptoms are those of valvular disease. Some peculiarities in the murmurs may be regarded as fairly diagnostic; (changes in their position [and intensity, as well as their occasional sudden cessation;) the absence of fever may also be noted as distinguishing it from pericarditis.

In conclusion, Dr. Ganghofer mentions the dilatation consequent on congenital constriction (narrowing) of the aorta.—("Vierteljahrschrift," Prague, 1876, Vol. 2.)

DIAGNOSIS.

The Diagnosis of Insufficiency of the Aortic Valves. (From the "Ophthalmoscopic Reports," by Dr. Pflüger.)

A somewhat weakly boy, twelve years of age, who had complained for some time of increasing weakness of sight, was examined by Dr. Pflüger, by means of the ophthalmoscope. All the larger arteries of the retina were found to be extremely tortuous, and beating rhythmically with the radial pulse. The arteries and veins of the conjunctiva, as well as of the retina, were much larger, and apparently also more numerous than normal; the retina, moreover, was of a grey tint along the edges of the vessels. From these observations

Dr. Pflüger diagnosed "insufficiency of the aortic valves," and an examination of the heart completely verified the diagnosis.

There was a loud bruit over the third rib to the left of the sternum; considerable dilatation with slight hypertrophy of the left ventricle, and a loud systolic murmur in the carotids.

In connection with this case there was communicated a synopsis of the observations of Quincke and Becker on the intra-ocular circulation in valvular disease.—("Allgemeine Wiener Med. Zeitung," 1875, No. 39.)

PATHOLOGY AND MORBID ANATOMY.

On Thrombosis and Embolism of the Aorta (by Dr. Chrostek).—The hitherto-published cases of thrombosis and embolism of the aorta fall into the following groups:—

1. Embolism of the ostium aortæ.
2. Coagula attached to the walls of the aorta in its course.
3. Thrombosis of the inferior portion of the abdominal aorta.
4. Embolism of the aortic bifurcation.

Of the first group there are only three cases recorded. Their causes were:—

(*a.*) Carcinoma of the heart which perforated the endocardium.
(*b.*) Lesion of the internal surface from myocarditis.
(*c.*) Cardiac aneurism.

The first two cases were suddenly fatal; the third patient lived about an hour and a-half after the first symptoms of embolism.

To the second group belong four cases: one of the abdominal aorta, and three of the posterior extremity of the arch of the aorta, where, in two cases, the thrombus obstructed the orifice of the left carotid and subclavian arteries respectively.

The cause of the thrombosis could be traced in all four cases to atheroma of the aorta, and as the obstruction in these cases remained incomplete, death did not take place as a rule until caused by other mischief, as cerebral embolism, gangrene, &c. Thrombosis of the lower portion of the abdominal aorta was twice discovered; the cause was in one case atheroma, in the other compression of the aorta by a carcinoma of the stomach. The thrombus in each instance reached the iliacæ and obstructed the aorta completely, so that death quickly supervened.

Emboli at the point of bifurcation of the aorta are either quickly fatal, (unless the obstruction be incomplete), or the development of a collateral circulation ensures a sufficient blood-supply to the lower extremities. In less serious cases, in which the obstruction of the common iliac arteries is incomplete, the sudden disturbance to the circulation and the loss of mobility and sensation in the limbs will gradually be recovered-from (Lebert.)

In embolism and thrombosis of the abdominal aorta a collateral circulation is but seldom developed; indeed it only seems possible when the coagulum has been very gradually formed. Duchek records two such cases, in one of which the collateral circulation was carried on by the mammary and inferior epigastric artery, and in the other by the superficial arteries of the neck, the back, and the epigastric arteries.

The most reliable symptoms of embolism and thrombosis of the abdominal aorta are severe neuralgic pains in the lower extremities, formication, then paræsthesia, and finally complete anæsthesia of these limbs. Their temperature sinks to the coldness of marble, the arterial pulse is either weak or quite imperceptible. Later on, the anæsthesia is supplemented by a more or less complete paralysis of the lower extremities, which, finally, as the obstruction becomes perfect, terminates in actual mortification; rigors, delirium and coma then set-in, and so the scene ends.

Recovery is rare and never entire. Therapeutical remedies are simply useless with such conditions to combat. Absolute rest, cold poultices, and the local abstraction of blood are recommended.

Exciting drugs are contra-indicated, because they tend to produce stasis by increase of blood-pressure in the part (Duchek). Virchow advises the use of warm applications to the extremities. In a word, little can be done beyond treating the symptoms according to the general rules of good surgical practice.—("Allg. Militärärztliche Zeitung," 1875, No. 48.)

The Pathogenesis of Hypertrophy of the Heart (by Dr. Bertholl Stiller, Primärarzt, Buda-Pest).—A woman, æt. 60, had stayed two days in a hospital when she was seized with uncontrollable hæmoptysis, and rapidly sank. The cause of the bleeding could not be ascertained during life, but at the autopsy the following appearances were found:—

Extensive hæmorrhagic infarction in the lungs; eccentric hypertrophy of the heart, the valves being normal; also incipient atheromatous changes in the aorta. There was no trace of the right kidney or ureter, or of the orifice for the latter in the bladder; the left kidney was much hypertrophied.

The author thereupon makes the following remarks:—

The cause of the hæmoptysis was probably the pulmonary infarction, which itself, on account of its large size and rounded form was thought to have resulted from the embolism of the right heart. The cardiac hypertrophy and dilatation may fairly be considered as the sequence of the absence of the kidney, for the removal of such a considerable capillary surface as is contained in the substance of a kidney would materially increase the resistance in the systemic vessels, and hence also the work of the left heart. But few analogous cases have been recorded in medical literature; Rokitanski and Storck had each a case. In experimental ligature of the renal artery on a dog no cardiac hypertrophy followed, but the animal survived the operation too short a time to render the test decisive. In another experiment of ligature of the ureter, eccentric hypertrophy of the left ventricle followed after an interval of four months.—("Wiener med. Woch.," 1875, No. 31.)

Amyloid Degeneration of the Muscle of the Heart.—Introductory Lecture by Professor Heschl.

Professor Heschl discovered that the violet writing-ink made by Leonard formed a beautiful and convenient reagent for testing for the "amyloid substance" in tissues: and that, even under the most difficult histological conditions, and where all other tests had failed, this reagent proved beyond a doubt the existence of the smallest amount of amyloid degeneration. It often happens, when any of the abdominal organs are affected with lardaceous disease, that the substance of the heart will present a peculiar waxy appearance, while it is yet quite impossible to prove the existence of amyloid substance by the usual methods of testing. This has, however, now been done by means of the new reagent, and an assistant of Prof. Heschl succeeded in finding traces of lardaceous disease in the vessels and tissues of the heart of a woman who had long suffered from caries of the spine, and who died from extensive amyloid degeneration of the abdominal organs. Heschl carried his researches further, and found, in numerous small arteries, arterioles, and even in capillaries, the same characteristic reaction.

According to his experience, the lardaceous material is scattered throughout the smallest bundles of muscle in tiny patches, and especially affecting the perimysium and inter-fascicular material. In cases where the disease is but little developed the amyloid material forms around the primitive fasciculus a beautiful sheath which is often incomplete, easily broken, and of varying thicknesses; as the disease develops itself this becomes a strong thick cylinder encasing the fasciculus.

This casing cannot be regarded as a lardaceous degeneration of the sarcolemma, as no such tissue exists in the fasciculi of the heart; it is rather a new non-cellular growth from the muscular fasciculi themselves.—("Wiener Med. Woch.," 1876, No. 2.)

Communication from the Pathological and Anatomical Institution in Prague, by Docent Dr. H. Eppinger.—An account of some dissections made in the above institution in the years 1873-4 :—

With regard to the respiratory system, the following interesting cases were noticed: Three cases of pneumonia from inhalation of (poisonous) gases.

A case of suffocation of a boy of 15 years, in whom the epiglottis and the aryteno-epiglottidean ligament were enormously swollen, stretched, and infiltrated with serum.

Also a case of phlegmonous larynx in a man, ætat. 58, where the submucous tissue of the aryteno-epiglottidean ligament and its neighbourhood was greatly swollen and infiltrated, and the glottis was almost closed.

Under the head of "circulation-apparatus" an instance is given of a congenital narrowing of the aorta in a man, ætat. 38, in whom the aortic measurements were as follows:—Immediately above the valves 5·5 centimetres, at the top of the arch 4·8 centimetres, above the diaphragm 3·6 centimetres, below the latter 3 centimetres, immediately above the bifurcation 2·8 centimetres.

Further, there was a similar constriction observed in a man about 43 years old. The circumference of the aorta measured above the valves 10·5, at the arch 6, above the diaphragm 4·7, below the same 3·7, and at the bifurcation 3·5 centimetres. The left heart was enormously dilated, but the valves were perfectly normal.—("Präger Vierteljahrschrift" for Practical Medicine. 1875. Vols. i. and ii.)

Abnormalities of the Lungs, by Professor Klebs.—Professor Klebs describes as abnormalities of the lungs:

1. Total absence of both lungs (in monsters without a thorax).
2. Those forms in which arrest of development has left the lungs in a rudimentary condition.
3. Cases in which one lung is rudimentary, the other well developed.
4. Congenital aplasia of the lung, which is observed oftenest on the right side. (Of the nine cases recorded, two belong to the Museum at Prague.) In such cases, it occurs either that one lung is entirely absent, and the bronchus is rounded off and presents a closed stump, or it ends in a small nodule or ball, which contains the elements of lung-tissue.

To compensate for the lost lung-mass, we never find hydrothorax in such cases, but the space is partly filled by a gradual giving-in of the chest wall of the right side, and the remaining cavity becomes filled with plastic material poured out by the pleura costalis. With this condition there often occurs aplasia of the bones of the same side, and the heart becomes pressed upon and embarrassed.

With regard to the etiology of this abnormality, Klebs has decided that it is neither due to fœtal disease nor to an arrest of development of the lung; he rather inclines to the view, that, as it is essentially an abnormality of the right side, and is almost always accompanied by a defective left kidney, both conditions are probably owing to one cause, namely, the bent and cramped manner in which the fœtus lies in utero, and the consequent hindrance and embarrassment to the processes of growth and development, especially of these parts of the body.—("Präger Vierteljahrschrift" for Practical Medicine. 1875. Vol. ii.)

CLINICAL MEDICINE.

On Aneurism of the Aorta (by Prof. Schrötter).—Although it was Skoda's opinion that aortic aneurisms could only be diagnosed when they lie immediately beneath the chest-wall, yet they are often recognised with certainty even when they are deeply embedded in the thorax. In his description of the symptoms of aneurism, Schrötter asserts that pulsation is one of the weightiest; this is peculiar, sometimes fierce and rapid, and sometimes only perceptible by the aid of the manometer. It is further remarkable, inasmuch as it is not yet explained why aneurisms seem to press the most against the surface of greatest resistance, set the chest-walls in motion, and cause the absorption of ribs and vertebræ; while the cavity of the thorax itself, and the soft parts surrounding, offer a resistance incomparably less.

If the aneurism lie close to the thoracic wall, its pulsatile movement must necessarily be communicated to the latter; yet this cannot be considered as a differential diagnostic point, for it is quite possible for an aneurism to be thus situated and cause no pulsation, as Schrötter observed in one of his own cases.

A man aged 56, who had always been healthy, noticed, about six weeks before he came under observation, that his breathing became short on exertion. On examination, the cardiac dulness was found increased towards the right, and a pulsatile movement was detected to the left (corresponding to the position of the pulmonary artery), and during the systole to be felt over a space only as large as a shilling. At this spot was heard a loud systolic and diastolic murmur; the veins of the neck were enlarged. Schrötter diagnosed this to be valvular insufficiency and stenosis, with aneurism of the *pulmonary* artery. Skoda, however, opined that it was a case of *aortic* aneurism.

At the autopsy was found a large aortic aneurism lying close under the anterior thoracic wall, extending towards the left to the pulmonary artery, which was pressed by and pulsated with the aneurism. The diastolic and systolic murmurs were explained by the discovery that stenosis had at first existed in the pulmonary artery, and that latterly its valves had become partially absorbed by the pressure, so permitting regurgitation.

But rhythmic pulsation does not always definitely denote an aneurism (for any tumour connected with a large artery will partake of its movement), but only when, besides the beating movement, a simultaneous *spreading* or lateral enlargement is seen. And even this criterion is not always reliable, for there are soft fluctuating tumours—medullary carcinomata—which, when connected with pulsatile vessels, will swell and apparently pulsate with each systole. Professor Schrötter himself had a case of fibroid of the uterus, which, when the open hand was laid gently on the tumour, gave a thrilling pulsation, and simultaneously separated the fingers from each other.

Percussion alone is not to be relied on. More important for diagnostic purposes is auscultation. Over an aneurism one hears, either nothing at all, or one or two clear tones, or perhaps loud murmurs, or a systolic bruit with a diastolic sound, or the converse. The existence of a loud second sound over the aneurism has been on the one hand denied altogether, on the other hand, admitted but not explained; finally it was thought to be the normal second sound conducted from its place of production in the aorta. That this hypothesis is erroneous was proved by a case in which a diastolic murmur was audible over the aortic valves, and a loud second sound over the aneurism. Professor Schrötter asserts that the second loud sound is produced by the vibration of the aneurismal sac, or its sudden contraction, for, even when most distended, it possesses a certain degree of elasticity and contractibility; were this not the case the blood-pressure even during the diastole would suffice to keep it constantly dilated. Now, if this contraction takes place with any degree of force, and the walls of the sac are free to vibrate, the second sound will be audible.

But if over a thoracic tumour there be heard a *systolic* murmur, or one of a constant blowing character, it is very doubtful whether we have not a carcinoma with distended vessels to deal with. But with a musical sound or diastolic murmur, an aneurism may be diagnosticated with almost absolute certainty.

Pulse.—If the pulse on the distal side of the aneurism be small, slow, and intermittent, one of the following conditions may be assumed to exist:—

(*a.*) The aneurismal sac may be as large as a child's head.

(*b.*) The aneurism itself, although it may be small, may contain a solid coagulum, which may press upon the descending aorta.

(*c.*) The constant growth of the aneurism by pressure or otherwise may cause the constriction or distortion of the distal portion of the artery.

(*d.*) Or other arteries on the distal side of the aneurism may be pressed by it; this seldom happens, for as a rule an artery will rather take a different course than suffer itself to be injured by such pressure.

Professor Schrötter communicates the following remarkable case: One of his patients was suffering from considerable pleuritic effusion. Over the heart there was no systolic murmur, no pulse was perceptible in either the abdominal aorta, the crural vessels or their branches. The autopsy revealed an aneurism of the descending thoracic aorta as large as a child's head, growing posteriorly and imbedded in the vertebræ. The vessels below the aneurism were all much narrowed, but patent. The sac had pressed so forcibly on the artery as to allow the blood only to flow in a small constant stream as in a vein.

A new means of diagnosis is examination by means of the "tracheoscope." Pain even when intense is no characteristic symptom. Aneurisms may also exert a pressure on neighbouring arteries, though not often injuriously. Schrötter observed this in a case where the pulmonary artery suffered from the pressure of an enormous aneurism, and in which gangrene of the lung followed.

Compression of the trachea occurs sometimes from carotid aneurism. It may be recognised by the familiar whistling sound during inspiration. In compression of the bronchi, deficient breath sounds may be remarked over the corresponding area of the lung.

Compression of the œsophagus by an aortic aneurism will announce itself by increasing difficulty of swallowing. When this is complained-of, therefore, it is always prudent to examine the heart and large vessels in order not to cause perforation by an incautious use of the bougie.

The existence of paralysis of the left half of the larynx should give-rise to a suspicion of aneurism. Compression of the recurrent branch of the vagus is not uncommon, and easily explicable if the topographical anatomical relations be borne in mind.

Perforation of the aneurism, either inward or outward, is an event of very common occurrence. Schrötter has recorded a case which, in this respect, is interesting. A patient of his was suffering from aortic aneurism, with extensive effusion into the right pleural cavity. Suddenly he fell into a condition almost of collapse, and suffering intense agony, the symptoms pointing to internal hæmorrhage. The most careful examination of the dying man failed to give the author any definite information as to the cause of the hæmorrhage. At the autopsy it was found that the aneurism had given way under the pressure of the fluid in the chest. The lung was adherent to the chest-wall and the diaphragm, and in such manner that the pent-up fluid increased faster than it could trickle out from its adhesions, hence enormous pressure was exerted on the aneurism, which gave way in consequence.

With regard to treatment, little can be done; of late, aneurisms have been injected, with a view of inducing coagulation in the sac, a procedure that might prove successful in cases where the opening into the sac is but small.

In such a case, where unendurable dyspnœa was consequent on the pressure of an aneurism on the trachea, Schrötter devised the expedient of injecting the tumour with the liquor ferri perchlor. With this end in view, he procured a syringe with a long needle-point conveniently curved, and its point protected by a movable canula. This was passed (by the aid of the laryngoscope) through the glottis into the tumour, and with the best results. The patient was already convalescent when a pleuritic effusion set-in, and bursting of the aneurism shortly followed. The autopsy verified the correctness of the diagnosis and the possibility of a cure by the method proposed.

When the dyspnœa caused by compression of the trachea is very distressing, Professor Schrötter suggests that tracheotomy be performed, and a long canula passed through the constriction. But it is doubtful if such a method of procedure would be followed by a long reprieve, the very presence of the canula under such circumstances being often quite enough to cause gangrene of the part.—("Mittheilungen des Wiener med. Doctoren Collegiums," 1876, No. 12.)

CLINICAL MEDICINE AND SURGERY.

On Foreign Bodies in the Pharynx and Larynx. By Professor Schrötter.

The diagnosis of foreign bodies in the larynx is so much facilitated by the use of the laryngoscope, and the instrument has recorded so many diagnostic triumphs, that every medical man should be well acquainted with its use.

The foreign bodies usually found in the air-passages are of the most various forms; they are often pointed objects, as fish-bones, fragments of the bones of other animals, and similar bodies; when sharp or pointed, they are generally found to be more or less wedged in among the surrounding tissues.

In reference to the symptomology of this class of accidents, Schrötter observes that a fatal result is seldom known to ensue immediately on the entrance of the foreign body, but that the patient experiences pain in the part, paroxysms of coughing, anxiety, difficulty of breathing, etc. Symptoms of constriction of the air-passages appear later on, after the foreign object has had time to induce inflammatory changes. The direct phenomena are often so apparently unimportant or latent that the patient himself may have no suspicion of the presence of a foreign body in his windpipe. In such cases even the medical man may easily err, as the following instance will show. A well-educated engineer, on rising one morning, missed his artificial teeth (four incisors fastened into a vulcanite plate). He had swallowed them during the night, but experienced no uneasiness until suddenly, while searching for them, he became aware of some pain in the chest, and, a little later, difficulty of breathing. The teeth were supposed to have lodged in the œsophagus, but, on a laryngoscopic examination, they were found wedged in immediately beneath the true vocal cords. The foreign body was removed by tracheotomy.

The second case was that of a man who had suffered already two or three years from difficulty of breathing. Stenosis of the trachea was thought to exist; and the diagnosis founded on the presence of some pus-like fœtid sputum, probably from an old abscess in the tracheal wall. Schrötter tried dilatation with English catheters, but unsuccessfully, the patient dying on the third day after he was first seen. The autopsy revealed a quantity of cellular-tissue in the upper part of the trachea (which new material had grown round the foreign body, and firmly fastened it in its place), also some catarrhal pneumonia. The foreign body itself, a fragment of bone 2 centimetres long and 1½ broad, was found at the bifurcation of the trachea, whither it had been pushed by catheterism from its previous position.

Relatively to the diagnosis, Professor Schrötter remarks that (especially in young children) it is often attended with grave difficulties. He remembers a case of a nurse who, while eating a rice-pudding, swallowed a foreign body. After having made three long and careful examinations on consecutive days, he succeeded in discovering in a niche of the left tonsil, a grey foreign object projecting about 1 millimetre from the tonsil. On withdrawal with the forceps, this proved to be a portion of rice straw 2 centimetres long and 1 millimetre broad. To discover this, it was necessary to examine carefully and thoroughly every part of the mouth, pharynx, and glottis; and there is no doubt that, whatever the difficulties of its use, the invaluable laryngoscope is the best and safest means for the discovery and removal of such bodies.

With regard to the issue of such cases, the foreign body may be either coughed-up soon after its entrance, or may remain in its position for years. In the latter event it may, probably will, set up secondary inflammatory conditions — bronchitis, pneumonia, abscess or gangrene of the lungs, cirrhosis; or it may find its way into the pleural cavity, the mediastinum, or the stomach, or be eliminated through the walls of the thorax; or it may even become covered with connective tissue, and remain for years where it first lodged without inconvenience to the patient. Rokitanski observed such a case in the body of a man who had died from Bright's disease. The bony tracheal ring of a goose was found in his trachea deeply imbedded in cicatricial tissue.

Foreign bodies in the pharynx, glottis, or the upper part of the trachea, may be removed by means of the laryngoscope, without recourse to tracheotomy. The instrument employed should be either Türk's or Mackenzy's forceps, or better still, a forceps modified from that of Türk, by Schrötter, and so constructed by Reiner, of Vienna, that the blades can be turned in any desired direction. In undertaking the operation, patience and gentleness are necessary; with this borne in mind, foreign bodies may be removed even from little children without difficulty. The following instance of a child ætat. 3½ years, gives proof of this:—A chicken-bone had stuck firmly in its glottis, and in spite of the youth and intense excitability of the little patient, the bone was safely removed without opening the trachea.

Even when an *intra-laryngeal* operation is impossible, the laryngoscope is indispensable to point out the position of the foreign body, and therefore the proper height at which to make the incision. Professor Schrötter has removed, by means of the laryngoscope and forceps, the following foreign bodies:—a needle, two large bones from the pyriform sinus, three fish-bones, two very sharply-pointed bones from between the posterior walls of the pharynx and larynx, and three bones from the glottis.—("Mitth. des Wiener med. Doctoren Collegiums," 1876, No. 4.)

The Causation of Constriction of the Larynx and Trachea (by Dr. Schnitzler.)—A robust and powerful man sought advice from Dr. Schnitzler for a hoarseness in his voice which had suddenly come-on about two years previously, and rapidly increased until almost complete aphonia resulted, with some difficulty of breathing, which latter, however, was only troublesome at times of exertion or excitement. The lungs and heart were normal. Examination by means of the laryngoscope disclosed the following conditions:—The larynx was pressed somewhat obliquely from the right towards the left side, the glottis visibly narrowed, and appeared both in speaking and respiration, as a narrow elliptical fissure, which, even on the deepest inspiration, only opened to the width of 2 millemetres. The right arytenoid cartilage was placed rather anterior to and below its fellow, and both were almost immovable. Dr. Schnitzler found the cause of the laryngeal constriction to be a tense rather elastic tumour of the size of a hen's egg, attached to the posterior wall of the pharynx, and so deeply placed that he could only with the greatest difficulty reach and examine the most anterior part of the tumour with the tip of his finger. Opinions were divided between a pharyngeal abscess, cyst, or sarcoma, there being grounds for suspecting these conditions, although each was so uncertain that no positive diagnosis was given.

The immovability of the two arytenoid cartilages and the glottis was ascribed by Dr. Schnitzler to perichondritis of the crico-arytenoid surfaces, though he did not altogether exclude the possibility of paralysis of the recurrent nerve. The patient rapidly sank, and the post-mortem examination by Dr. Chiari showed that the tumour was formed by a group of diseased thyroid glands, among which were, however, a few normal ones (patient had never shown symptoms of struma); there was also discovered lying between the vertebræ and œsophagus, and pressing on both, a tumour of about the size and shape of a hen's egg, which appeared to grow from the thyroid glands, and was covered by a strong fibrous capsule. This tumour, which was otherwise easily movable, pressed upon and constricted the pharynx, the upper part of the œsophagus, and also the larynx and trachea, from behind and to the right. The thyroid and cricoid cartilages were ossified, and the surfaces of the right crico-arytenoid articulation were firmly fastened together by the growth of new connective tissue.—(" Mitth. des Wiener med. Doctoren Collegiums, 1876, No. 11.)

On Blennorrhœa of the Air Passages (by Professor Storck.) Storck describes especially the etiology and complications of this affection.

An affection of the mucous membrane of the nose and pharynx resembling blennorrhœa may often extend to the respiratory tract, carried thither by the nasal secretion. The mucous membrane of the larynx and the air-tubes degenerates to a thick skin of connective tissue, which may increase in thickness until it causes a distressing and incurable narrowing of the whole trachea. Nearly all the patients under Storck's observation came from the provinces.—(" Anzeiger der K. K. Gesellschaft der Aerzte," Vienna, 1876, No. 24.)

On Snuffles from Obstruction of the Nasal Cavity (by Professor Storck.) The Professor describes only such cases as are caused by adenoid growths (hypertrophy) in the tonsils; for the removal of these he employed a steel-wire guillotine. Hitherto he has had three cases in young persons, and all were successfully treated.

On Incomplete Closure of the Venous Valves without Disease existing, and on Stenosis and Incomplete Closure without Murmurs (by Dr. Olvidmann, Physician in Lemberg.)

The author first mentions the generally-known theories on the origin of heart sounds and murmurs, he also describes the different forms of valvular disease, and asserts that there are cases in which, during life, the symptoms of valvular disease were complete, while the autopsy proved that the valves were absolutely unchanged, so that it was necessary to seek the cause in the cartilaginous rings or the musculi papillares. Such instances of incomplete closure diagnosed during life, and not found in the corpse, are those in which the heart has been forced out of position by the encroachment of other enlarged organs (as the liver or spleen), pressure on the heart being followed by precisely the same results as ensue on the compression of superficial arteries, *i.e.*, a murmur is formed.

But if such conditions co-exist as to induce an accentuation of the second pulmonary sound, one gets something very like strong clinical evidence of valvular insufficiency. The author, moreover, mentions that cases occur in which the lack of auscultatory signs has induced him to diagnose favourably when the *post-mortem* has revealed extensive valvular changes. But these are valvular diseases of long standing, when the fissure between the closed valves is considerable, and, moreover, when the heart's energy is materially diminished by endo-, myo-, and pericardial inflammatory mischief.--("Wiener Allg. med. Zeit.," 1875, Nos. 41, 42, 43, 44.)

A Case of Pneumonia (by Lövenstamm).—A man, thirty-two years old, who was suffering from pneumonia of both lower lobes of his lung, was seized on the fifth day of his illness with hemiplegia of the right half of the body.

The pneumonia was cured in twelve days, and by the fourth week his hemiplegia had gradually disappeared.—("Med. Chirurg. Centralblatt," 1876, No. 23.)

On Recurrent Asphyxia, in the course of an attack of Hooping-Cough (*Tussis Convulsiva* (by Dr. Szolner).—Dr. Szolner remarks that in a child, ætat. 5 weeks, the convulsive stage of this affection began in the following manner:—

The paroxyms of coughing occurred every three or four hours, during intervals of comparative comfort, and were attended by a peculiar change in the colour of the child's face, which, from being puffy and congested, suddenly became dark-blue; respiration was completely and suddenly suspended, whereupon the deep-blue colour disappeared, giving place to a death-like paleness. The eyelids were closed, and no sign of life was perceptible. The infant remained in this state from twenty-five to thirty seconds; the heart and pulse not to be felt.

Attacks of this kind were called by the author, as he found them nowhere described, "asphyxia recurrens;" and he explains them by the hypothesis that, during the paroxysms, arterial blood is insufficiently supplied to the brain, and the nervous centres receiving but little oxygen, cessation of the vital functions necessarily ensues.—("Allg. med. Zeit.," Nos. 34, 36.)

Aphonia Spastica (by Dr. Joh. Schnitzler, Vienna.)—A patient, æt. 15, came under Dr. Schnitzler's observation, complaining of hoarseness of the voice, which had quite suddenly come-on six weeks before. When first seen, his voice had sunk to a scarcely-audible whisper—a condition which was thought to proceed from paralysis of the vocal cords. After repeated attempts to speak, he experienced difficulty of breathing, and a sense of oppression, which, however, passed off when he remained quiet. Curiously enough, laryngoscopic examination proved that the mucous membrane of the pharynx, larynx and trachea was quite normal. The vocal chords moved perfectly, and showed no gaping on attempts at articulation, although no sound followed. The secret, however, lay in the fact that the patency of the glottis was insufficient to allow any but the smallest quantity of air to pass, and at each attempt to produce a sound, the vocal cords *approached* or even *overlaid* each other. After many unsuccessful attempts at intonation, the difficulty of breathing supervened, and then the vocal cords again separated from each other. The diagnosis of this affection was called "phonetic spasm of the glottis."

After both the induced and the constant current had been used unsuccessfully externally and internally, galvanization of the nerve-centres was tried, and with the happiest results. The patient's voice returned suddenly, at first only for a short time, but for gradually increasing intervals, until it was permanently and completely restored.

This aphonia spastica, in contradistinction to aphonia paralytica, depends, according to Schnitzler, on a functional cramp of the muscles, similar to writer's cramp in being caused by some disturbance in the co-ordination-apparatus.

The so-called phonetic spasm of the glottis must not be confounded with inspiratory spasm of the larynx. But they have this in common, that in both we have to deal with a narrowing of the glottis; and the essential difference consists in the fact that the spasm of the larynx is entirely independent of the influence of volition, while spasm of the glottis is only induced when the patient endeavours to use his voice.

This case may also be considered as one of chorea laryngis.—("Med. Presse," 1875. Nos. 20, 22.)

Observations on Epidemic Diphtheria (by Dr. Josef Lazarus).—The author distinguishes between—1. Epidemic diphtheria; 2. Sporadic diphtheria; and 3. Diphtheria accompanying scarlatina.

Epidemic diphtheria mostly attacks young persons, from the second to the seventh years of life. Most persons who have once recovered from scarlatina seem to have lost their susceptibility to diphtheria. *Among all his patients with epidemic diphtheria, the author could not find one who had suffered from scarlatina; and, on the other hand, he never observed during epidemics of diphtheria any tendency to an extension of epidemic scarlet fever.* Since the outbreak of the diphtheritic epidemic in Czernovitz and its neighbourhood, in the November of 1875, many hundreds of children, but only three adults, died of the disease. In by far the greater number of cases, he found only the pharynx and tonsils reddened, and covered with a mouldy-looking membrane, which, in from 3 to 5 days disappeared without treatment.

But the circumstance that during an epidemic of diphtheria such cases were exceedingly numerous, and that they showed so decidedly contagious a character, that ordinarily one case in a family was the precursor of many more—moreover, that even from the slightest attacks, cases of serious gravity were known to arise—induced Dr. Lazarus to classify the lightest forms of this disease which occurred during the epidemic as cases of true diphtheria, and accordingly he suggested for such forms the name of "*abortive diphtheria.*"

In graver cases, when the patients succumb early, intense salivation is developed. The diphtheritic process extends about the third day to the nasal mucous membrane, from which then a yellowish-brown, extremely fœtid secretion begins to flow, which is intensely destructive to the neighbouring tissues. From the third to the fourth day a considerable quantity of albumen may be detected in the urine, and at this stage death often supervenes, either from suffocation or septicæmia. *The nasal mucous membrane almost always participates in the diphtheritic changes, but not so that of the larynx.*

The younger the individual the greater the possibility of an accompanying laryngeal affection, for which the fifth to the seventh days are the most dangerous. Sometimes a croupous affection of the larynx follows the diphtheria, and when this occurs it is ordinarily from the second to the eighth day; but Lazarus never observed the converse of this order.

The nervous system may be also attacked by the contagion, for sudden death may supervene in any stage of the disease, even during rapid convalescence. The author recalls vividly two cases of this kind. A little girl, æt. 8 years, had had a smart attack of diphtheria of the pharynx, her strength was good, and she was recovering her health, when on the fourth day she became suddenly collapsed, and died in two minutes. Also a boy, æt. 12 years, who was already convalescent, and had been three days back at school, when he suddenly lost consciousness, and in two hours was dead. In such cases, as is well-known, paralysis of the heart is regarded as the cause, for, in the third and fourth weeks after diphtheria, cardiaç paralysis is observed with especial frequency. Dr. Lazarus also saw a very distressing case of paralysis of the muscles of the neck and throat, in which the head fell by its own weight to any side.

With regard to pulse and temperature, these are at first both higher than normal; though if they fall at night during the first week to any considerable extent, and if this fall continue steadily to increase, one may diagnose with certainty the "abortive form" of the disease. Another fact is striking, viz., that both pulse and temperature may show considerable variations in the same day.

In reference to the diagnosis of this disease, Dr. Lazarus saw true diphtheria often ushered-in by slight symptoms, and the abortive form by very stormy ones; also the swelling of the cervical glands is no certain means of diagnosis. But true diphtheria can be diagnosticated without chance of error if a *white membrane be seen on the posterior wall of the pharynx; if the swelling of the cervical glands be accompanied by a somewhat hard infiltration of the cellular tissues; and lastly, if albumen be discovered in the urine.*

As to the prognosis, Dr. Lazarus agrees with the general opinions, *i.e.* that it is always to be considered bad when the diphtheritic infiltrations in the pharynx are more severely destructive, when the disease spreads itself over the laryngeal mucous membrane, and when scrofulous or tuberculous individuals are attacked. *Cæteris paribus*, the younger the child the more unfavourable the prognosis.

In reference to the treatment, Lazarus employs touching with nitrate of silver in the beginning of the disease, but not later in its course. As there is no specific remedy the treatment indicated is symptomatic. Dr. Lazarus strongly advises that children be kept indoors during a diphtheritic epidemic (as a prophylacteric), and if the disease once break out, all persons, especially the young, should be sent away. When opportunity offered for him to see his patients on the first day he touched the part with acid carbol. ℈ j. to aq. ℥ i., and ordered a gargle of potass. chlor. or salicylic acid. Internally he gave quinine with salicylic acid. Later on he prescribed the same gargles three times daily, the pharynx and nasal cavity to be well syringed-out with them, kept the patient very clean, in a well-ventilated room, and gave plenty of nourishment. If in later stages the pulse were small he gave alcohol and stimulants.—("Czernovitz Wiener Med. Presse," 1875, Nos. 38, 39.)

A Clinical Study of the Condition of the Interior of the Larynx in Bright's Disease (by Dr. Morritz Heitler).—Dr. Heitler examined with the laryngoscope all the patients suffering from Bright's disease in Dr. Löbel's clinic, and found the following conditions:—

A striking pallor of the mucous membrane of the mouth and of the internal covering of the larynx.

Also some œdematous swelling in this situation, even when the remainder of the body had not thus suffered. The œdema of the laryngeal mucous membrane is either entire (but then always unsymmetrical), or partial. Generally the aryteno-epiglottidean folds are swollen, sometimes so largely that the pyriform sinus becomes quite closed up, and the glossy, glistening tumour considerably narrows the laryngeal opening. Often the mucous membrane covering the cartilages of Santorini is œdematous and puffy, as also the posterior wall of the larynx, the latter swelling simultaneously with the aryteno-epiglottidean folds; the false vocal cords are seldom œdematous. The position in which the patient lies does not influence these conditions.—("Wiener med. Presse," 1875, No. 39.)

On Pulmonary Syphilis (by Dr. Emil Rollet, Docent at the University of Vienna).

It is certain that during the course of constitutional syphilis, different forms of diseases of the parenchyma of the lung and bronchi appear, which are syphilitic in their origin. But these are little studied in their pathological and anatomical, and still less in their clinical relations. In any case pulmonary syphilis must occur far oftener than has been anatomically proved and recorded, and it is for the recognition of just this disease that the exact history of the symptoms, the chronology of specific disturbances, and the results of therapeutical treatment are of the greatest possible importance. In its early stages pulmonary syphilis is marked by either nodulous masses, of various forms and sizes, or more diffused infiltration, which is also sometimes accompanied by nodules. These are confined to one lobe as a rule, but they may (especially in young infants) implicate the whole of one or both lungs. In the later stages may be found caseous masses with patches of fatty degeneration and atrophy, ulcerous vomicæ and masses of callous connective-tissue.

The physical and functional symptoms of pulmonary syphilis are therefore analogous to those which are owing to other similar abnormal processes, such as chronic caseous pneumonia, tuberculosis and cancerous infiltration, etc.

Grandidhier found the disease situated in the right middle lode in twenty-seven cases out of thirty, and considers this situation to be characteristic, in contradistinction to that of tuberculosis in the apex. According to Rollet's observations, the most important and reliable aids to a differential diagnosis are the prevailing situation of the disease in the middle thoracic region, its absence from the apex of the lung, and the position and form of the area of dulness of the percussion note.

The symptoms of pulmonary syphilis are: Dyspnœa, partly owing to diminution of the respiratory surface from the development of the syphilomata, and partly to pressure on or injury to the neighbouring large bronchi; also perhaps not less due to the accompanying catarrhal swelling and presence of fluid in the air-passages, or to some secondary inflammation of the neighbouring lobules.

The difficulty of breathing may augment to orthopnœa or attacks of asthma; further a feeling of pressure or weight on the chest; cutting pains on deep respiration or percussion (owing to inflammatory irritation of the pleura), dry-cough, and bloody sputa. Percussion gives a more or less extensive, often sharply-defined and circular or irregular dulness *over the middle thoracic region;* this may be on one or both sides, and may be well heard between the scapulæ. The phenomena of resistance and auscultation are precisely similar to those of other pulmonary infiltrations.

The diagnosis is strengthened by the simultaneous appearance of syphilitic phenomena in other organs, the observation of the clinical facts of the case, especially the past history of the infection, the occurrence of rashes, etc., further by the absence of the so-called "scrofulous habit," or early inflammatory diseases of the organs in question, as also by the effect of well-known anti-syphilitic drugs.

Dr. Rollet concludes with the suggestion to his colleagues to give pulmonary syphilis more attention, in order, if possible, to throw some light on the important relations existing between syphilis and pulmonary phthisis, tuberculosis and scrofula.—("Wiener med. Presse," 1875. No. 47.)

A Case of Primary Idiopathic Bronchial Croup, third case (by Dr. Chvostek.)—Bronchial croup resulting from severe hæmoptysis; the plastic material was expectorated during three days; the masses of membrane and fibrin so entirely covered with coagulated blood that they might easily have been overlooked.

History of case:—Two years before, the patient had pleurisy on the right side, with occasional expectoration of blood during five weeks; he recovered from both; and shortly afterwards he had also a slight attack of typhus.

A month before he was seen, patient brought up one morning a large quantity of blood; the previous evening he had gone to bed perfectly well. He had no cough or pain in the chest, but only complained of great weakness. Examination of the thoracic viscera showed them to be perfectly normal, with the exception of a few moist breath-sounds. During the next night he again expectorated about one and a-half ounce of partly coagulated, partly fresh blood. On examining this carefully he found on the surface of the coagula a few white threads, which, when dropped into clean water, proved to be small arborescent and bifurcated fibrinous casts, about two inches long, and of a dirty white colour. The thickest ends had a diameter of 1½‴; the finest twigs bore little nodulous masses on their free ends; they were all hollow. The second night afterwards patient again expectorated, without difficulty of breathing or troublesome coughing, but simply by "hemming" a similar though smaller coagulum, in which the tubules were large enough to be cut open, and most of them contained blood. After five days patient was discharged perfectly well.

The microscopic examination showed that the casts were composed of coagulated fibrin marked with parallel longitudinal striations, and having a transversely undulating appearance. To some of capillary fineness were attached epithelial cells from the pulmonary alveoli, which cells were all pigmented, and contained more or less of fat; here and there, too, some lymphatic cells might be discovered in the coagulum.

This case goes to prove that bronchial croup, under some circumstances, may be very easily overlooked.—("Wiener med. Presse," 1875, No. 50.)

A case of Traumatic Insufficiency of the Pulmonary Arterial Valves (communicated by Dr. Nathan Weiss).—In the summer of 1874, a sailor, æt. 42, fell, striking his left chest. The accident was followed by a cutting pain in the cardiac region, cough, shortness of breath, and, after six months, signs of dropsy. He had never been ill before.

The external jugular vein on each side was swollen to the size of a finger; the internal jugular was strongly distended, and both easily fluctuated. There was complete dulness on the left side at the third rib, and on the right over the fourth rib opposite the nipple. The transverse diameter of the heart was enlarged. At the apex of the heart were heard two weak, low-pitched murmurs, which were also audible over the whole præcordial region and the front of the left thorax, increasing in distinctness upwards, and most distinctly audible at the left edge of the sternum, opposite the third rib. The diastolic murmur was very long and loud. Over the aorta, besides the murmur above-mentioned, the normal sounds were indistinctly audible. The pulse was infrequent, hard and small; the apex beat normally placed, but weak and diffused. The liver was enlarged, the back and abdomen œdematous.

The autopsy verified the clinical diagnosis of simple insufficiency of the pulmonary valves. Its traumatic cause was also corroborated, for in the situation most complained-of by the patient, the connective tissue attached to the pericardium and pulmonary artery was found injured and torn.

It is also worthy of mention that the lungs were everywhere in a *hyperæmic* condition, as many authors think that in this complaint the lungs are invariably anæmic, an error that Duchell has already noticed and contradicted. A noteworthy feature of this case was its becoming so rapidly fatal.—("Wiener med. Presse," No. 12, 1876.)

Vicarious Bronchial and Pulmonary Hæmorrhage and Hæmatemesis (by Dr. Kohnt).—A patient of Dr. Kohnt's, æt. 20, menstruated regularly from the age of 13 to 15 years; from 15 to 16 six menses were consecutively deficient, in lieu of which she had each month a vicarious epistaxis, lasting from two to three days. From her 16th to 19th year she again menstruated regularly without epistaxis. In the November of 1874, she brought up about 140 grammes of frothy blood (the blood being expectorated by "hemming" at each respiratory movement of the chest), and from this time she lost from 60 to 80 grammes of blood daily during three months in the same manner and without cough or pain. Her lungs and heart were completely normal. In March, 1875, patient vomited blood after every meal, and in the following June even after taking fluid, and had sanguineous stools. This condition of things continued until this was written, (during the long period of fourteen months,) the patient vomiting from 40 to 80 grammes of blood after each time of taking food. She discovered, however, that dry roast meat formed an exception to the rule; and, therefore, during a whole year her nourishment consisted of this one article of dietary; meanwhile she menstruates regularly, is not anæmic, sleeps well, and is strong and active. All methods of treatment have been tried absolutely without result.—("Wiener med. Presse," 1876, No. 7.)

The Accidental Swallowing of a Needle; its Disappearance in the Thoracic

Viscera, with but Slight and Transient Uneasiness therefrom (by Dr. L. Tarsinski, physician to the House of Correction at Lemberg).—A prisoner, who was employed as a tailor, was holding between his lips a sewing needle 3 centim. long and 1 mm. thick, somewhat blunt, curved, and carrying a short thread, when, during a fit of coughing, a strong inspiration carried the needle into his throat, leaving however the thread behind. Thereupon followed spasmodic coughing and a sharp, cutting pain in the pharynx, the former subsiding after a quarter of an hour. The sputum was small in quantity, frothy, and containing a few drops of blood. The most careful ocular and digital examination failed to discover any such foreign body; the patient could swallow, speak, and breathe without pain, only he felt a slight "pressure" behind the manubrium sterni. The blood-traces in his sputa soon disappeared, and, a few days later, every other symptom of injury, and Dr. Tarsinski has already had the patient a year under observation without the smallest appearance of injury to either the respiratory or digestive organs.—("Wiener med. Presse," 1876, No. 17.)

Aneurism of the Thoracic Aorta.—("Physician's report on the K. K. Austrian and Hungarian National Hospital in Constantinople, for the year 1874; by Dr. Weisbach.")

A shoemaker, ætat. 49, came into the hospital with pain in the side of his chest. After three days he had difficulty in swallowing, with a dry-cough; there was no dulness, but all over his lungs could be heard rattling and gurgling; then severe hæmoptysis supervened, and quickly afterwards death.

The autopsy revealed a small sac, with thin walls, situated on the left of the descending aorta, immediately opposite to which the aortic wall was perforated by a quadrilateral opening of about 2 centim. in diameter, and which communicated with a cavity placed 2·5 centim. beneath the arch between the aorta and œsophagus, and extending backwards behind the fundus of the stomach. This cavity had no proper walls, and was filled with decomposed greasy coagulum. At the height of the perforation the œsophagus showed a nut-brown patch several centimetres in length, which was more or less deprived of its muscular layers, the mucous membrane appearing uncovered, and irregularly perforated; the posterior wall of the stomach was in the same condition, ulcerated almost through, and both stomach and œsophagus were entirely filled with offensive coagulum.—("Mitt. der Wiener Doct. Collegium," 1875, Nos. 24, 25.)

From the General Hospital in Melnik, by Dr. S. Treulich, Prague. ("Vierteljahrschrift für pract. Heilkunde," 1876, Vol. i.)

Case 1.—*Fractura Laryngis Multipla; Ruptura Tracheæ.*—A stableman, ætat. 33, who, while engaged in giving his horse fodder, was seized by the animal across the nape of his neck, lifted from the ground, and shaken. (The date of the circumstance was July 10, 1875.) He immediately lost consciousness, and on recovering himself found he could neither speak nor swallow. His condition, on admission, was as follows:—He was quite unable to speak, breathed with difficulty, and his neck was so intensely swollen and emphysematous that it was absolutely impossible to make out anything by feeling. An accurate diagnosis was therefore out of the question, although it was fairly evident that solution of the continuity of the trachea formed part of his injuries, the most plausible conjecture being "fracture of the laryngeal cartilages." Towards evening, however, his dyspnœa became so distressing that Dr. Treulich decided on tracheotomy. During the operation he found, between the cricoid and thyroid cartilages, a widely-gaping fissure, owing to complete rupture of the crico-thyroid ligament; through this fissure he passed a canula into the trachea. The cricoid cartilage presented on its anterior surface two curved fractures, and the left thyroid cartilage gave rough crepitation.

The diagnosis, therefore, ran thus: — "Rupture of the crico-thyroid ligaments, fracture of the cricoid and thyroid cartilages, and rupture of the trachea." The canula was allowed to remain in its place, and fastened in; the patient was provided with a stiff support to the neck, and the usual administration of food or drink of any kind strictly forbidden. For the first few days the patient was fed by means of an œsophageal tube; soon, however, he could take nourishment by the mouth, and before many days he could breathe through the glottis during short intervals. On the 26th the canula was permanently removed, and on the 8th of August the patient was discharged quite well, except that his voice was somewhat rough and hoarse.

The restoration of the continuity of the air passage in this instance took place by means of a new growth of connective tissue; although in cases of this kind, when connective tissue is the medium of continuity, there is always considerable danger that instead of a tube a solid cord may be formed during the healing process—an eventuality that may be averted on the one hand by the passing of a bougie from time to time through the upper orifice of the retracted air-tube; or, on the other hand, by early and vigorous respiratory efforts on the part of the patient; the canula being, of course, closed meanwhile.

Case 2.—*Pneumothorax ex Ulcere Œsophagi.*—A journeyman, ætat. 40, in trying to swallow a large piece of tough meat, unfortunately got it firmly wedged in his œsophagus; it soon set-up inflammation of the wall, and adhesions to the neighbouring organs; finally, suppuration followed, and perforation into the pleural cavity. The diagnosis made during life was found to be quite accurate at the post-mortem examination. Two inches above the cardiac orifice there was found, in the right œsophageal wall, an ulcerating wound, of irregular elliptical form, ragged edges, and covered with pus. Through this wound a suppurating perforation opened immediately into the right pleural cavity, which was nearly full of greyish-looking pus; the right lung, moreover, was reduced to a very small volume.

Embolism of the Pulmonary Arteries in consequence of the use of Esmarch's Elastic Bandage on the Lower Extremity, observed at Professor Späth's Obstetric Clinic, by the Clinical Assistant, Dr. T. von Massari.

A woman, ætat. 33, in the sixth month of her second pregnancy, was brought to the clinic with intense anæmia, owing to hæmorrhage from placenta prævia, which had existed during fourteen days. After removal of the fœtus and placenta she fell into a condition of unconsciousness and collapse, with laboured breathing, without improvement on the exhibition of analeptics. Both lower extremities of the patient were now bandaged with the elastic webbing from the toes to the upper third of the thigh, and she immediately appeared to improve, her pulse became again perceptible and her breathing easier. She complained, however, for some hours of pain in the lower limbs, and accordingly the bandages were taken off, but had to be resumed immediately, as the anæmia of the brain and lungs threatened each instant to be fatal. The following morning the pain proved unendurable, and the patient again begged that the bandages should be loosened, and again their instant resumption was imperative. She bore them until night, when, as she could not sleep, and was in fearful misery, she entreated their removal once more. Her request could not be denied, and the bandage was unrolled with the utmost care, first from the left limb; but the instant this was free the patient sank back unconscious, and, in spite of active restorative measures—the rapid rebandaging of the leg included—she died in two hours.

The autopsy revealed a number of coagula in the pulmonary arteries, three to four millimetres thick, and one to two centimetres long, many of them being plainly casts of the valves. There remained no doubt, then, that at the instant of the removal of the bandage from the left foot, thrombosis of the pulmonary arteries had taken-place. The coagula had formed in the saphenous veins, their formation doubtless favoured by the varicosity of these veins, and the necessary long-continued bandaging of the limb.

Also in a second case, which was communicated privately to Massari by Kundrat, a similar course of events took-place. A woman, who was suffering from large varicose veins of the lower extremity was treated by her doctor by bandaging with flannel. On the loosening of the bandages the woman suddenly died, and the autopsy, held by the sanitary authorities, proved embolism of the lung to be the cause of death. Massari, therefore, cautions his readers against the use of elastic bandages for varicose subjects, whose limbs, moreover, should never be allowed to remain many hours bandaged, lest the formation of solid clots be thereby facilitated.—("Wiener med. Woch.," 1875, No. 48.)

On a Rare Case of Stenosis of the Glottis (by Dr. Sidlo).—A soldier, ætat. 22, had suffered for several years from a sharp pain in the right chest, in spite of which he had been compelled for a year or two to use a wind-instrument. Four weeks before his admission into the hospital he was attacked by a severe cough with hoarseness of the voice, and, a little later, difficulty of swallowing ensued and shortness of breath. Especially at night his breathing was stertorous and laboured.

On admission it was possible to hear, even from some distance, a rather loud protracted respiratory sound occurring both at inspiration and expiration. His voice was hoarse and weak, his breathing difficult, and his face showed considerable cyanosis; in short, he had every appearance of laryngeal stenosis.

Recourse to the laryngoscope revealed a constriction of the glottis from every side, inasmuch as both the true and false vocal cords were œdematous and reddened, presenting a large swelling forwards, which even caused the anterior third of their edges to touch; moreover the front surface of the posterior laryngeal wall bulged forwards. During respiration the vocal cords were perfectly immovable; attempts at intonation caused them to approach each other, without, however, touching behind. The apices were slightly dull, and a few moist sounds were audible; there was some fever and night-sweats. The diagnosis, therefore, was "recent infiltration of the apices, and laryngeal stenosis," owing to inflammation of the mucous membrane and sub-mucous tissues of the false and true vocal cords.

In about a month the laryngeal swelling began to subside and lose its redness, without, however, any corresponding enlargement of the rima glottidis. Shortly afterwards patient's respiration became again audible, though a second laryngoscopic examination showed the vocal cords to be nearly normal, for, although rather close to one another, they separated on expiration; efforts to articulate were accompanied by their normal movement.

Dr. Sidlo also recollects a similar case under his care, which was that of a typhus patient, who, during convalescence, had perichondritis of the left arytenoid cartilage and "motus perversus" of the left vocal cord. The author explains this anomalous movement by the fact that the arytenoid cartilage being destroyed by the perichondritis, the mechanism for opening and fixing the glottis was deranged, and the left vocal cord, deprived of its point of support, was unable to balance its fellow, so that, even during inspiration, it was drawn towards the middle line by the contraction of the transverse arytenoid muscle.

In this case both the mutual approximation of the cords and the "motus perversus" were owing to the more or less diminished power of the muscles opening the glottis, for here there was no destruction of the articulations, but the cause lay in the muscles themselves, namely, inactivity of the posterior crico-arytenoid muscles. The further course of events verified the diagnosis. The stenosis reached its highest point in a few days, so that the arytenoid cartilages touched each other, and the vocal cords were so closely approximated that the fissure was only just visible; in short, there was complete paralysis of respiration, and exact closure of the glottis in articulatory efforts. (Of similar cases only three have hitherto been recorded in medical literature: one by Gerhardt, one by Riegel, and the third by Pengordt.) In the above case there was also present "paralytic dysphagia," and Dr. Sidlo's opinion (arrived at by a process of exclusion) was that the muscle-paralysis was owing to nervous causes; that probably both the recurrents were pressed or crushed in their lowest portion by pleuritic exudation. The patient was ordered to be kept absolutely quiet, and morphia given internally. Once he made a sudden movement which kept him in danger of instant suffocation during half an hour. Five months from his admission, and after many fruitless attempts at electrical treatment, Dr. Sidlo made his first trial of catheterisation of the larynx, without, as he feared, endangering the patient's life by suffocation, and after twenty-six successful operations the rima glottidis was enlarged to half its normal size. It is true that a considerable degree of "motus perversus" remained, the arytenoid cartilages were still in contact, and at night his respiration was rather stertorous; yet by day he breathed without noise, even when moving about, and was quite out of danger of being suffocated. Two months later he was seized with pulmonic symptoms and swelling of the vocal cords; and suffocation threatening, tracheotomy was performed, but the patient sank in two days.

The autopsy discovered the following interesting condition of the larynx. A narrowing and shortening of the glottis, and dislocation of both arytenoid cartilages, whose inner surfaces were firmly connected by cicatricial ligamentous tissues. A large radiating cicatrix on the front of the posterior laryngeal wall *and atrophy of both the posterior crico-arytenoid muscles.* Finally, Dr. Sidlo speaks most highly of catheterism of the larynx in such cases as the preceding.—("Wiener med. Woch.," 1875, Nos. 26, 27, 29.)

Obliteration of the Aorta at the Origin of the "Ductus Botalli" (by Dr. Josef Hormung, Clinical Assistant).—(A similar case was observed several years since by Professor Schrötter, who communicated it to the Wochenblatt of the K. K. Gesellschaft in Vienna.)

This case, highly interesting on account of the wonderful development of all the characteristic symptoms, was that of a young man, æt. 27, employed as a journeyman carpenter, who, until five days prior to his entry into the hospital, had always been perfectly healthy. He first complained of a cutting pain through the whole of the left half of the thorax, and great difficulty in breathing. At the first examination, pneumonia of the left upper lobe was discovered, with a remarkably slow, full and hard pulse. By the sixth day the pneumonic symptoms had entirely disappeared; they were succeeded, however, by others more interesting still.

In the carotid and subclavian arteries pulsation could be *seen*, the finger laid on them received a smart "stroke," and a systolic blowing murmur was to be heard in the neighbourhood of both these vessels.

Behind the thorax, at the upper angle and inner border of the scapula, there were some tortuous vessels with scarcely perceptible pulsation. The heart's action was somewhat violent, the movement of the chest-wall being visible up to the left axilla, and the intercostal arteries were seen pulsating synchronously with the radial pulse in their spaces bordering on the sternum. The heart was enlarged in both diameters, but especially from apex to base. The first sound was protracted and diffused; over the aorta both sounds could be distinguished. The first sound was accompanied by a high-pitched rasping bruit; the aortic sound itself remarkably clear and ringing. "The bruit, which sounds as if deeply seated, is continued round the left side to the spine; in front it is not heard to the right of the sternum. The abdominal walls are very soft and impressible, so that the anterior surface of the vertebral bodies may be easily felt; yet, in spite of this circumstance, no pulsation is perceptible in the abdominal aorta. The femoral, popliteal, tibial, plantar, and metatarsal arteries are not perceptibly pulsatile. In the region of the colon the percussion note is duller, with no resistance."

The consideration of these facts left no doubt that the question was one either of obliteration, or of an advanced degree of stenosis of the aorta below the origin of the larger vessels, this hypothesis explaining the hypertrophy of the heart and the development of a collateral circulation. Patient was discharged at his own request, as he appeared in good health. Three months afterwards, however, he fell down dead in the street.

The autopsy corroborated the opinions advanced during the patient's life; his aorta was completely obliterated to an extent of 3 millimetres, and his sudden death was due to rupture of the largely dilated vessel within the pericardial sac. "These obliterations," the author remarks, "are to be ascribed to the slow development of processes which begin in infancy or possibly during fœtal life."—("Wiener med. Woch.," 1876, No. 16.)

Reports of the Medical Clinic of Dr. A. Taksch, Prague, for the Session 1873-74 (by Dr. H. Haas, Clinical Assistant).

A noticeable case in these reports is one of "syphilis cordis." Three years before he was seen, a man, æt. 38, caught a sore, and soon afterwards a rash appeared. Also about the same time he became aware of the first heart-symptoms—*i.e.*, palpitation, shortness of breath, and later on, hæmoptysis.

On his admission into the hospital his prevailing symptoms were stenosis of the left pulmonary venous orifice, area of heart's dulness enlarged, a loud second pulmonary sound, systolic and diastolic murmurs at the apex, venous pulsation in the neck, and some blood stasis in the lungs. Soon after, dropsy commenced, then ascites and anasarca, and in a few months he died suddenly.

The autopsy proved that the paralysis of the heart had been caused by a syphilitic new growth in its muscle, and consequent disease of the bicuspid valves.—("Prager Vierteljahrschrift für practische Heilkunde," 1875, Vol. iii.; and 1876, Vol. ii.)

The "Cheyne-Stoke's Phenomena of Respiration" observed in a Dipththeritic Boy æt. 2½ (by Dr. V. Hüttenbrenner).—A badly-nourished child, suffering from extensive laryngeal and nasal diphtheria, exhibited, thirteen hours before his death, the "Cheyne-Stoke's phenomena of respiration" without the process extending to the bronchi. As there were, however, no brain symptoms present in this case, the only plausible explanation that could be given of it was degeneration of the heart's muscle.—("Jahrbuch der Kinderheilkunde und physischen Erziehung," 1875, Vol. 8.)

A Case of Laryngeal Stenosis caused by a Foreign Body in an Œsophageal Diverticulum (communicated by Dr. S. Monti, of Vienna).

A perfectly healthy infant, ætat. one year, became suddenly cyanotic and breathless, symptoms which, although alarming, were much mitigated by an emetic. After five hours of quiet sleep, the child awoke with an audible hoarse respiration, ringing cough, and intense dyspnœa, which was accompanied by a peculiar valvular murmur. These symptoms were again somewhat relieved by the exhibition of an emetic, although the little patient's voice still remained aphonic, and his cough loud and hoarse; his respiration, also, was of a character that indicated laryngeal stenosis. After eight days a smart attack of fever set in, and during four weeks the stenotic symptoms remained unaltered, each night approaching distressingly near to suffocation. There was no difficulty of swallowing, though the infant was extremely wasted. At this time it first came under the author's notice. The laryngoscopic examination revealed nothing except some swelling of the epiglottis. A catheter could easily be passed into the larynx, and a bougie into the œsophagus without meeting any resistance. The child died on the tenth day.

At the autopsy there was found, near the third cervical vertebra, a foreign body, a small seal, whose flat surface lay on the third to the fifth vertebræ, while the handle pierced the right side of the glottis in such manner that its point lay in contact with the inferior edge and posterior angle of the right thyroid cartilage. The seal was of brass, and covered with fragments of food; the plate 17 millimetres long, 12 millimetres broad, and 2 millimetres thick, and attached to a handle of the same metal. The pharynx showed, at the spot in question a diverticulum in its right wall as large as a walnut.—("Jahrbuch für Kinderheilkunde und physische Erziehung," 1875, Vol. 9.)

A Case of a Tumour in the Posterior Mediastinum, (communicated by Dr. Adolf Farisch).

A boy, ætat. 4, had inflammation of the lungs and bronchitis ten months before he was seen; then six months later, he was said to have measles, and during this illness, difficult and whistling respiration, and his head to be drawn backward, conditions which had almost disappeared. After a short interval he was again attacked by difficulty of breathing, which sometimes threatened suffocation; in this condition the child came under Dr. Farisch's observation. His respiration was noisy, audible to a considerable distance, and of a laryngostenotic type. The superficial veins generally, especially those of the neck and the chest, were much enlarged, his face swollen and puffy. From the manubrium sterni to the second rib there was dulness, the percussion note dull on both sides as far round as the scapulæ. Auscultation gave on the left front of the chest, as far as the third rib, sharp bronchial in- and expiratory vesicular murmurs and bronchophony; on the right, rough vesicular and rattling murmurs, and behind, corresponding to the dulness, sharp bronchial in- and expiratory sounds. The head was deeply wedged in between the shoulders, the spinal column being slightly kyphotic at the second vertebra. The child perseveringly resisted any attempts to move its head; the larynx was normal. During the eighteen days the child remained under observation, the laryngostenotic symptoms underwent no change in severity; there were nightly remissions and renewed attacks of asphyxia, which often threatened a fatal termination, which, in fact, really occurred on the eighteenth day.

At the autopsy was found a smooth and fluctuating tumour, as large as a tennis-ball, situated behind the trachea (which it pressed forward and to the right), and opposite the fifth and sixth cervical vertebræ, covering the innominate artery at its point of bifurcation into the carotid and subclavian. The tumour contained a quantity of partly fluid, partly grumous pus; its posterior wall was attached to the spinal column. The body of the third cervical vertebra was roughened, and that of the second was partially wanting, a carious opening, large enough to admit a finger, leading directly into the spinal canal. Further examination of the body was not permitted by the parents.—("Jahrbuch für Kinderheilkunde und phys. Erziehung," 1875, Vol. 8.)

On a Tumour of the Epiglottis, removed by the Electric Cautery (by Prof. Voltolini).

The author removed, by means of the electric cautery, a tumour as large as an apple, situated on the anterior surface of the epiglottis; the growth proved to be a lipoma.—("Tageblatt der 48er Versammlung der deutschen Naturforscher und Aerzte" at Graz, 1875, No. 7, p. 113.)

A New Instrument for the Removal of Tumours from the Superior Surface of the Vocal Cords (by Dr. Gottfried Scheff).

Dr. Scheff describes a crushing instrument, whose blades are so constructed that it can only be used for the removal of tumours and excrescences which are attached to the superior surface of the vocal cords. (Türk has already constructed a similar instrument.) Dr. Schreff has used his instrument once with the happiest results.—("Allg. Wiener med. Zeit.," 1875, No. 27.)

Removal of an Epiglottidean Polypus under Local Anæsthesia (by Dr. G. Scheff).

The author first describes the use of general narcosis in order to carry out intralaryngeal operations; then the various methods of inducing local anæsthesia of the larynx.

He employed successfully Türk's method for local anæsthesia (with Schrötter's modification) for the removal of a tumour the size of a pea from the left true vocal cord.—("Allg. Wiener med. Zeit.," 1875, Nos. 33, 34.)

On Local Anæsthesia of the Larynx (by Prof. Schrötter).

Schrötter remarks that anæsthesia should only be used in cases where there is peculiar sensitiveness on the part of the patient, or insufficient skill on the part of the surgeon for manipulation of the larynx. The method is as follows:—The evening before the operation the glottis must be painted with pure chloroform about a dozen times, and an hour afterwards as many times with a solution of morphia (R. Morph. hydrochl. gr. xij.: aq. dest. ʒij.) During the use of the morphia the patient must not swallow his saliva, indeed after each use of the brush it is prudent to let him gargle his throat with a little tannic acid solution. Early the next morning the operation can be undertaken. If the patient be still sensitive, the whole proceeding must be repeated. The method is not dangerous, and easy of application.—("Tageblatt der 48er Versammlung deutscher Naturforscher und Aerzte" in Graz, 1875, No. 4, p. 112.)

Professor Gerhardt (Ibidem, No. 7, p. 219) recommends as an anæsthetic, painting the laryngeal mucous membrane with a solution of colchicum.

On Plugging the Nasal Fossæ (by Dr. Josef Englisch, Docent der Chirurgie at the Hochschule, Vienna).

Plugging the nasal cavity by means of Belloq's sound is an operation of doubtful success to both patient and surgeon. It is often a difficult task to pass the sound through the nose and bring the spring safely back past the soft palate, while passing the posterior plug is extremely unpleasant to the patient, and must be often several times repeated; moreover, it is not easy to hold the mouth so long open, and the operator runs the risk of being bitten. And supposing the plugging to have been successfully performed, the thread that runs through the mouth will irritate the soft palate and uvula, and there often results great salivation, pain in the ears, decomposition of the mucus, and a fœtid odour. Moreover, the removal of the plug is also highly disagreeable, and a severe catarrh may remain in consequence.

Under these circumstances it was a considerable advance when, in 1871, Küchenmeister gave his "Rhineurynter" to the medical world; and Velpeau introduced his somewhat similar instrument, the "Rhinobion." Küchenmeister's instrument is composed of a hollow indiarubber ball, of 1½ centim. in diameter and 1¾ centim. long, and a thin tube of the same material, which is intended to project from the anterior nares. The ball is passed through the nasal fossa into the pharynx and inflated, then drawn firmly forward against the posterior nares, the tube being closed by a small clamp.

The makers are now introducing larger indiarubber plugs for this purpose, 5 centim. long, 2 broad, and the tube 12 to 13 centim. long. Dr. Englisch made many experiments with these on the dead subject, and found them wanting in many essential points. If the ball be expanded with water to its maximum size it becomes conical, and therefore cannot be well drawn into the nares, nor, indeed, would it fit, as the cavity is quadrilateral with rounded corners, and the plug often slips down into the pharynx. Other difficulties in fitting these bags accurately into the nares are, chiefly, that the muscles of the posterior nares are not unfrequently swollen, and the projection of the uvula, which often swells and becomes elongated. A great disadvantage is also the necessity of fastening the tube outside the anterior nares, for if it is not sufficiently firm the plug slips backwards out of its place. The ball must be fully distended (and this is extremely difficult to accomplish in the pharynx) or it will sink gradually lower in the direction of the least resistance to the glottis, and there cause difficulty of breathing and swallowing. Moreover, the slightest movement of the head will suffice to shake the plug from its place, and if both nares are to be plugged, the affair is so much more difficult.

From his researches on the dead subject, the author found that only so much water should be injected into the ball as would moderately dilate it, in order that it might the better shape itself to the surrounding parts; yet, as Küchenmeister found, there is always a part of the nares not properly closed. In his experiments on heads of different ages, he found that the closure was the more complete in proportion as the height of the flat plug corresponded to the height of the nares.

The question as to the possibility of so accurately closing the posterior nares as to completely stop the flow of blood into the pharynx was answered by Englisch decidedly in the affirmative. The apparatus of Küchenmeister is, in fact, one that closes the nares absolutely, and will in future obviate the necessity of many troublesome operations through the mouth.

Many cases of hæmorrhage from the nose, and also the difficulty of plugging the posterior nares, induced Englisch to turn his attention to the methods of Küchenmeister, and to attempt on the one hand to prevent the plug from slipping away, and on the other hand to close the anterior nares at the same time. He succeeded in this by the construction of a double ball, or bag, of which both parts were connected by means of a tube, the anterior ball provided, as before, with a tube for inflating them both. The total length of the apparatus is 7 centimetres. The posterior ball is 3·8 centimetres long and 3 broad; the anterior ball 2·9 centimetres long and 1·8 broad; the connecting tube 1·2 centimetres long and 0·8 diameter. The ball may easily be passed by means of a No. 1 catheter (Küchenmeister's embolus). The apparatus should not be longer than to fit properly when one ball is fixed just inside the posterior nares, and the other as forward as may be without projecting from the anterior orifice. It is therefore necessary to know the length of the floor of the nasal fossæ. Englisch advises not to measure this by means of any instrument passed through it, in order not to increase the bleeding, but to measure the roof of the mouth. He places the tip of his finger on the posterior edge of the hard palate, and measures the distance from this to the incisor teeth; one centimetre added to this will give the required measurement.

In filling the balls, Englisch observed that at first they both dilated equally, but afterwards the posterior ball, as it began to touch the pharyngeal wall, offered more resistance; further, that the anterior ball was more inflated, and would often even empty its fellow, drawing the air into itself, as the latter collapsed under pressure. It follows, therefore, that the anterior ball must be made of thicker material than the other. In filling them the operator must stop as soon as the front ball fits rather tightly to the walls of the nares; the quantity of fluid they ordinarily carry is about an ounce.

The closure of the tube can be effected by means of a clamp or forceps, and when all is finished it may be ligatured; to remove the apparatus the balls must, of course, be allowed to collapse.

Thus the two balls mutually hold each other in their respective places, and therefore the connecting tube should be strong in order to draw them firmly together.

Too great a pressure on the nasal walls must be avoided, or injury may result; at first considerable pressure is necessary, but afterwards, when the cavity is filled with blood-clots, the pressure may be diminished by allowing a little water to escape very gradually. In order to facilitate the formation of coagula it might be expedient to slightly roughen the surface of the tube and balls.

This apparatus has a further advantage over the plug used with Belloq's sound—viz., that it can be ascertained at any time whether or not bleeding be stopped, for, if not, the apparatus can again instantly be filled.

Englisch hopes that this method will entirely supersede the most troublesome plug and sound, and he thinks that the laity, persons subject to epistaxis, might use the apparatus themselves, as it is perfectly easy of application. He mentions that the best form of ball is one with folded walls, quadrilateral and somewhat longer than wide.

When it was impossible to pass the apparatus well in by means of a forceps, Englisch effected its entrance in the following manner:—The posterior ball was passed as far as possible, or until the half of its length was opposite the most convex portion of the turbinated bone and narrowest part of the interior of the nasal fossa; then water was squeezed from the anterior into the posterior ball, which, gradually dilating, forced itself backwards towards its intended position, and this measure was repeated until the apparatus was firmly and properly adjusted.

Finally, Dr. Englisch has contrived an instrument for passing a full-sized apparatus even when the nasal fossa is much smaller than usual. The instrument consists of two thin steel blades, two millimetres broad, let into a handle at one end, and having somewhat the appearance of a tuning-fork. The free ends spring easily apart, and may be approximated by a sliding ring. The inner ball is now placed between the closed blades of the instrument, and may be passed through the narrowest nostril. When the ball is adjusted, the ring is pushed back, the blades spring apart and may be withdrawn, leaving the ball in its place; the apparatus is then filled by means of a syringe.

This little instrument is much smaller and easier in application than a Belloq's sound. For the apparatus itself, Dr. Englisch prefers the brown indiarubber, as stronger than the grey variety.

The author also recommends the double apparatus for hæmorrhage from other cavities of the body. For example, after lithotomy, one ball is passed into the rectum, while the connecting-tube corresponds to the sphincter. If now the ball be filled, it will press the prostate and bladder against the symphysis; the whole of the true pelvis may even be filled in this way. The ball is in any case better than charpon or lint, as the withdrawal of these may set up hæmorrhage by distending the sphincter.—("Wiener med. Presse," Nos. 21, 23, 24, 26.)

Thyreotomy (by Professor Czerny, Freiburg).—Since the year 1860, the operation of "thyreotomy" is no longer the only method of removing tumours from the larynx, but their removal may be accomplished by an endolaryngeal operation, by sub-hyoid-pharyngeotomy, or extirpation of the larynx. And not only the indications for operations but the operations themselves are much altered; for instance, by prophylactic tracheotomy, plugging of the trachea, and the intense narcotism thereby induced. Among the cases for the operation of thyreotomy of the larynx, the most are in children under ten years old, on account of the resistance such young children make to laryngoscopic examination. It is, therefore, a standing indication to operate for laryngeal tumours in children as soon as dyspnœa sets-in and the endolaryngeal method is futile.

Professor Czerny relates the clinical history of a boy who was affected with numerous papillomatous excrescences in the larynx, and dyspnœa therefrom, but could not in any way be induced to permit their removal by an endolaryngeal operation. The author first performed tracheotomy, and eight months later thyreotomy. In this operation the blood was prevented from running down the trachea by a small piece of sponge (the size of a nut) which was attached to a silken thread and passed into the air passage through the wound. The growth was removed with a forceps and curved scissors, and the mucous membrane brushed with a solution of perchloride of iron. The wound healed in fourteen days with very little suppuration and without sutures. Hitherto, six months after the operation, there is no recurrence; his voice is loud but rough. Czerny, however, would not hesitate to repeat the thyreotomy were the growth to recur, assuming, of course, the patient opposed the endolaryngeal operation as vigorously as before.—("Wiener med. Woch.," 1876, Nos. 9, 10.)

The Therapeutics of Laryngeal Growths (by Dr. Telenffy, Buda-Pest).—After the author has briefly noticed the etiology and the various forms of these growths, he asserts his opinion that their treatment has been much neglected, for he believes that the most energetic corrosive materials, the knife and galvanic cautery should all be used at need for their destruction. He most strongly advises that laryngotomy be performed when laryngeal growths exist, even if there be no symptom of difficulty of breathing, but simply in order that laryngoscopic examination and treatment may be aided by therapeutical measures from below. By means of the laryngoscope one sees plainly the upper boundary of the growths, but it is quite impossible to know how far they may extend downwards; moreover, the incisions in an endolaryngeal operation are of necessity somewhat inexact or inefficient. Finally, Telenffy expresses his conviction that by means of laryngoscopy alone but little can be accomplished in the way of treatment for this condition, and he considers himself fortunate in possessing so much more efficient and facile a method.

This decided expression of opinion, however, stands strikingly in opposition to the experiences of the laryngoscopical clinic of Vienna during the last four years; and the reporter recollects several cases in the clinic as well as in private practice, in which, to our great satisfaction, we were able to dispense with tracheotomy, and by means of simple laryngoscopy, to relieve stenosis of a severe and advanced character. Some of these cases are described in detail in the reports of Professor Schrötter.—("Beitrag zur Behandlung der Larynxstenosen," Wien, Braunmüller, 1876.)

The opening in laryngotomy offers a convenient and safe means, not only of inspection, but also for operation and therapeutical manipulation. But even here this method, though quicker than that of laryngoscopy, is extremely tedious, and, as cicatricial adhesions after their division recur with great facility at the anterior commissure, Dr. Telenffy has contrived an instrument for their prevention. This consists of a small silver plate fastened to a shaft bent to a right angle, The plate is passed through the opening in the larynx towards the anterior wall of the pharynx, in such a manner as to separate the divided adhesions of the anterior commissure until they lose in some measure their tendency to re-unite.

Telenffy therefore proposes that in case an opening in the larynx exists already, no more time be lost in partially or absolutely unsuccessful laryngoscopic therapeutic endeavours, but that the growth be attacked from below; likewise in very advanced adhesions, when breathing is just possible, as well as in less complete stenosis, which may only slightly impede articulation, laryngotomy is by far the best course.

In the case described by him, Telenffy had destroyed the adhesions from below by means of Vienna paste with the most favourable results, the rima glottidis remaining patent; in this case he did not use his "dilator," as the anterior commissure was filled by a polypus, which had grown downwards from above, and by chance separating the vocal cords without disturbance to the breathing, had thus eliminated all possibility of the recurrence of the adhesions. Eventually the polypus was also removed, and the pharynx left patent. The patient left the hospital cured, and, some time afterwards, he removed the now troublesome canula.—("Wiener med. Woch.," 1876, No. 10.)

On the Treatment of Laryngeal Stenosis (by Prof. Schrötter, Vienna, Braunmüller, 1876).—In this monograph Prof. Schrötter alludes briefly to everything which has been accomplished or written in reference to this subject, mentioning the experiments and researches carried-on during a number of years under his supervision, and from which he derived his own method for the mechanical dilatation of laryngeal stenosis. This method has the marked advantage of enabling patients who suffer from advanced and apparently hopeless stenosis of the larynx, owing to laryngeal perichondritis, to dispense-with the canula, and once more to breathe through the normal passage. Professor Schrötter usually dilates the stenosis from above through the mouth, in preference to using an artificial opening in the larynx for that purpose, as the latter mode is more difficult for the surgeon, and intolerably distressing to the patient.

At first a small-sized English catheter should be passed, if possible, through the stenosis, the canula, of course, having been removed. Should this have proved successful during several consecutive days, thicker catheters must be used until the size is gradually increased to 15 (French), then metallic bougies are used. These are constructed expressly for the purpose; they have the peculiar form of the glottis, are three-cornered, with the angles rounded off; they are about 4 centimetres long, and increasing from before backwards ½ millimetre in thickness; the smallest is about 8 millimetres in breadth, and the largest 20 millimetres. They are generally made in sets of 24 bougies of graduated sizes. Through each is passed a brass bar, which is provided above with an aperture to carry a thread, and below with a small conical knob, fixed in a short neck made to fasten the bougie in a canula by means of forceps.

To pass the bougie the thread must be drawn by means of a small wire hook through a catheter-like tube fixed in a handle, and tied to small projecting wings made for the purpose. The bougie is now fastened to the tube, and by the aid of the laryngoscope may be passed through the stenosis and finally secured in the canula, which has an aperture cut in the top for it.

In order to dilate that portion of the stenosis which is immediately opposite the wound in the larynx, the canula must be removed and the bougie pressed down as deeply as possible, and held until the outer orifice of the wound is strongly retracted. If the bougie be fastened with the forceps, the thread is to be loosened, and the tube withdrawn over it, leaving the thread hanging from the patient's mouth. This causes no embarrassment in chewing or swallowing, and the bougie may remain for hours or even days until it becomes necessary to clean it, or to replace it by a larger one.

In his earlier cases Professor Schrötter employed three-bladed "dilators," which were passed in through the tracheotomic opening, and the blades separated by a screw. This instrument is no longer in use.

When, after having passed the bougie for months, the structure was found to be really dilated, Schrötter, in order to prevent its retraction, passed a tube of hardened indiarubber, 25 centim. long and correspondingly curved, through the mouth into the larynx, the lower end of the tube being pierced with many small holes. When the canula has been permanently removed, during the healing of the opening in the trachea, or later, the tubes must be passed several times daily.

By the use of these tubes the author has often been able to avoid tracheotomy when it seemed inevitable in cases of much stenosis of the larynx and the upper part of the air-passages.

The clinical histories in this monograph suffice to show, on the one hand, the immense amount of patience and endurance required by both surgeon and patient for the successful accomplishment of this operation; and on the other hand, the wonderful surgical triumphs which sometimes result; in any case the important question remains, whether it is in every instance possible to keep the canal patent and broad, so that the artificial wound can be permanently closed.

MATERIA MEDICA AND THERAPEUTICS.

The Therapeutics of Diseases of the Nose (by Dr. Georg. Catti, Assistenten an der Universitätsklinik in Wien).

Dr. Catti employed bougies of gelatine, 8 to 11 centim. long, and 4 to 6 mm. in diameter, for passing into the nasal fossæ.

They were made very thin at one end, and thick at the other, the gelatine containing various drugs for use in the nasal fossæ; *e.g.*, sulphate of copper, sulphate of zinc, carbolic acid, etc. The bougie required is held by the thin end, and passed with a slow rotating movement into the fossa; it may be placed in either the superior, middle or inferior meatus, by horizontal or oblique movements of the sound, as may be necessary. If the bougie be placed in the nasal passages it may be seen, by means of the rhinoscope, between the septum and the inferior turbinated bone, or between the middle and inferior turbinated bones. If the bougie project more than a few millimetres beyond the posterior nares into the pharynx it must be withdrawn and cut shorter, as otherwise it may be drawn into the mouth or pharynx during the movements of deglutition. After the manipulation is finished the nares are plugged with charpie, and in about three hours the bougie will have entirely dissolved.

Dr. Catti has used these bougies by passing them slowly and regularly, every day, for chronic nasal catarrh, for catarrh of the pharynx and posterior nares, and for hypertrophied tonsil; also for ozœna.—("Allg. Wiener med. Zeit.," 1876, p. 26.)

A New Rhinoscope (by Dr. Wilhelm Roth).

The author describes a new speculum, very similar to the instrument of Markersafski, for the examination of the nasal fossæ from the front. The instrument is very simple, easy to manipulate, and may be procured of the maker, Reiner, of Vienna.—("Allg. med. Zeit.," 1875, No. 43.)

On the Pneumomatic Treatment of Disease of the Heart and Lungs (by Dr. Schnitzler).

The *inspiration* of *condensed* air causes healthy persons, as well as the sick, to experience a strong sensation, as of air streaming into the lungs; they seem to be breathing larger volumes of air than usual. Respiration becomes deeper, the chest expands more fully. With the air more condensed still, the patient feels a sensation of pressure, and difficulty and embarrassment in breathing, so that inspiration cannot long go on. It is true that, up to a certain degree of condensation, more air will enter the lungs while breathing it; but in very high state of compression the great pressure on the lungs will prevent deep inspiration.

In using compressed air it is not simply a question of supplying the lungs with a larger quantity of air, but rather of increasing the pressure, and thereby forcing the air into the alveoli, and even into the minutest spaces, where otherwise (in catarrhal compression or atelectasis for example) it could not penetrate. The ultimate benefit from this proceeding is that by each respiration more oxygen will be absorbed and more carbonic acid given-out.

But the results of *expiration* in condensed air are widely different. According to Schnitzler's experiments, this is not followed by the smallest advantage; it excites the patient, renders his breathing difficult, and only in the rarest cases is it effective in alleviating his suffering. The interchange of gases is not only not facilitated, but actually hindered.

The act of *expiration* in *rarefied* air seems to cause in healthy persons and patients a feeling of contraction of the chest; most of them say that they have a sensation as of air being actually drawn or pumped out of their lungs. Often there occurs a painful sensation in the region of the sternum, but, after a time, most persons experience greater freedom and lightness of the chest than before. The total effects of expiration in rarefied air seem to be:—an increase of respiratory power, enlargement of the capacity of the lungs, and greater interchange of gases. Effects similar to these are ascribed by Waldenburg to *inspiration* in attenuated air, a statement that may very well be true of inspiration in the rarefied air of high mountains, but certainly must be erroneous when applied to inspiration of such air from a pneumatic apparatus.

From numerous experiments, then, it has been clearly shown that inspiration in a condensed, and expiration in an attenuated atmosphere may prove really valuable therapeutical agents; while the converse methods—also recommended by some—viz., expiration in a compressed and inspiration in a rarefied atmosphere, are of very doubtful value.

With regard to the condition of the heart and circulation during inspiration in compressed air, it will be observed that the negative pressure under which the heart lies in the thorax is eventually diminished, or may be even changed into a positive one.

From a theoretical point of view the general result of inspiring *condensed* air may be regarded as follows: an increased quantity of blood in the systemic and a decreased quantity in the pulmonary circulation; on the other hand, inspiration in *rarefied* air essentially increases the negative pressure on the heart, diminishes the amount of blood in the systemic, and increases that in the pulmonary circulation. The same effect might be produced by expiration in rarefied air, though here a high degree of attenuation would be necessary. Moreover, it is highly probable that a greater absorption of oxygen would result from inspiration in condensed air, and a greater quantity of carbonic acid would be given off during expiration in attenuated air. But the pulmonary circulation would also be influenced by the pressure on the capillaries, which is always increased by breathing condensed air; and the favourable condition of the lungs, well filled by deep inspirations, would be somewhat opposed. *Thus it will be seen that even when identical mechanical forces influence the respiration, they do not always produce the same effects on the circulation.* And, besides the purely mechanical causes, there are many forces which exert a great and not always well-estimated influence upon the activity of the heart. With regard to the therapeutical employment of these measures, it must be remarked that the methodical use of compressed and rarefied air will increase the power of respiration, enlarge the capacity of the lungs, and facilitate absorption and excretion in them. Hence the indications for the use of the pneumatic treatment are sufficiently clear—weakness of the respiratory organs, diminished vital capacity of the lungs, and insufficient interchange of gases. It is indicated also for individuals suffering from so-called "paralysis of the thorax," those who from their habits of life seldom breathe deeply and strongly, anæmic or chlorotic persons, whose breathing is superficial and short; in fine, for all whose respiratory powers are deranged from any cause, or whose breathing may be painful and short. In such cases the pneumatic treatment affords a strengthening exercise to the muscles and organs of the thorax. The patient is allowed alternately to inspire condensed air and to expire in rarefied air, and the result is surprising.

In cases of chronic bronchial catarrh the cough quickly subsides; after a few inspirations of compressed air, the lungs become expansible, their vital capacity increased, and, in a word, the catarrh disappears. Most authors recommend condensed air for catarrh, but Schnitzler prefers *expiration* in rarefied air, which has the effect of a powerful expectorant. Moreover, in many cases of catarrh and emphysema, it is desirable to add some medicaments to the air, to be inhaled with it.

Even in pulmonary catarrh and incipient phthisis, Schnitzler recommends the alternate use of compressed and rarefied air, for he believes it exerts a strong and favourable influence over the respiratory powers, and aids the interchange of gases. Schnitzler even observed in many cases a large increase in the vital capacity, the return of a good vesicular murmur, and a clear and full percussion note, facts which indicated not, perhaps, the disappearance of the infiltration, but rather a recovery of the alveoli from their condition of collapse and atelectasis.

In pulmonary emphysema the pneumatic treatment is of the greatest value, expiration in attenuated air probably doing more good than anything else could. And not only subjective improvements are obtained, but actual cures may result, provided, of course, that no destruction of the lung-tissues has taken-place. Also in nervous-asthma Schnitzler has had favourable results in one or two cases; in diseases of the larynx the method has seldom been used. In a case of paralysis of the muscles opening the glottis, respiration of compressed air was successful in alleviating the difficulty of breathing.

In reference to the pneumatic treatment of heart disease, Schnitzler deviates from the scheme of indications laid down by Waldenburg, and advises the inspiration of condensed, and expiration in rarefied air. No remarkable success was obtained, however, in any of the cardiac cases, the best result being a temporary improvement, and often congestion of the brain appeared during the proceedings.—("Wiener Klinik," 1875, Vol. 6.)

On the Employment of Compressed and Rarefied Air for Treatment of Cardiac and Pulmonary Diseases (by Dr. Schnitzler).—("Mit. des Wiener med. Doct. Colleg.," 1875, No. 19.)—This contains much the same information, from a therapeutic point of view, as was given in the monograph* on "Pneumomatic Therapeutics."—("Wiener Clinik," 1876.)

On Pneumatic Therapeutics (by Dr. Hanke).—In contrast with a pneumatic apparatus constructed six years before by Dr. Hanke for the condensation and attenuation of the breathing air; he has contrived an apparatus for rarefying the air around the thorax, which he calls the "pneumatic box."

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* *Vide* preceding paper.

This box is of sheet-tin, and closed on every side, except an oval opening at one end, through which the sick child's head projects when it is in the apparatus. Around this opening, and also around the face of the patient is fitted an indiarubber cap, hermetically fastened in every part, so that the air-volume inside the box is completely shut off from the surrounding atmosphere, and the face of the patient is the only part exposed. The cover of the box is provided with several pieces of apparatus, the tube of an air-pump to rarefy the air inside, a manometer to measure the degree of rarefication, and a cock to allow the air to return into the box when the desired degree of attenuation has been obtained.

The difficulty of breathing in children suffering from croup is owing to purely mechanical causes—viz., constriction of the air passages, and *loss of respiratory power*. Dr. Hanke, therefore, wished to combat these inconveniences also by mechanical means, and so his attempts to do so with condensed air were fruitless; he attempted to render inspiration easier by rarefying the air surrounding the thorax. Dr. Hanke calculated the degree of rarefaction of the air required for the purpose—especially in attacks of croup—from the amount of the positive and negative forces active in the respiratory process.

Thus $m = w + e + v$

$m =$ power of the inspiratory muscles.

$w =$ opposing force on the part of the thorax.

$e =$ elasticity of the lungs.

$v =$ the rarefaction of air in the lungs during inspiration caused by the constricted air passage.

Donders estimates "e" at 30 millemetres Hg., that is, the contraction of the lung draws on the interior of the thoracic wall with a force sufficient to rarefy a volume of air supposed to be therein to $\frac{4}{100}$ atmospheres. The value of "v" is calculated by Dr. Hanke to be between $\frac{1}{100}$ and $\frac{2}{100}$ atmosphere; "w" is not yet known. If now "e" and "v" be eliminated in favour of the inspiratory force, it will be necessary to allow a rarefaction of $\frac{5}{100}$ atmosphere to affect the outer surface of the thorax, and then "m" has only to overcome "w." During expiration the whole of the opposing forces are active in a positive sense, and if the action of the expiratory muscles be represented by "m," then the value of the whole expiratory force will be $m + w + e + v$.

Dr. Hanke has tried on himself the efficacy of this atmospheric rarefaction, and experienced before the commencement of the respiraratory act a dilatation of the lower part of the chest, with bulging of the epigastrium; deep inspirations were very easy. Expiration was spontaneously incomplete, and, after having used the instrument some time, he remarked that one has an irrepressible longing for a free expiration, which occurs very energetically when the cock is opened and air allowed to pass into the apparatus. The effect on the circulation was apparent by the diminishing of the pulse at the beginning of the experiment.

The action of the "pneumatic box" consists in the saving of work to the inspiratory muscles, and increasing the amount of inspired air. The increase of thoracic respiration and decrease of expiratory force obviate static hyperæmia on the systemic circulation.—("Anzeiger der K. K. Gesellschaft der Aerzte," Wien, 1876, Nos. 16, 21.)

Croup.—In the Crown Prince Rudolf's Hospital for Children three cases of croup were treated by this method.

Case 1. A little girl, æt. 3, was seized with the most pronounced phenomena of fibrinous croup: advanced laryngeal stenosis, constant difficulty in breathing, and distressing symptoms of suffocation; on the ninth day of her illness she was brought into the hospital. The child was scarcely placed in the pneumatic box when the number of respirations increased, her breathing became gentle and no longer difficult, and she fell into a soft sleep, which was only disturbed by coughing when air was allowed to enter the box. On her removal from the apparatus the difficulty of breathing returned, although the respiratory power increased every hour. The child recovered after three days' use of the apparatus.

Case 2 was that of a boy, ætat. 4, who, after eight days of illness from scarlatina and diphtheritic angina, was brought to the hospital with symptoms of a most serious attack of croup. After suffocation had appeared many times imminent he sank into a state of complete exhaustion, the breath-sounds were almost inaudible, with the exception of the laryngeal murmur, which could be faintly heard; and entrance of air to the alveoli was much embarrassed, not only by the constriction of the larynx, but also by obturation of the bronchi. The exhibition of emetics and tickling of the pharyngeal mucous membrane produced no act of vomiting.

The phenomena observed on placing this child in the pneumatic apparatus were essentially different from those noticed in the first. The difficulty of breathing was not noticeably diminished, but the laryngeal murmur became nearly inaudible, and often there might be heard at the end of inspiration a sound similar to that made by the flapping of a valve, probably proceeding from false membranes. On opening the cock the child coughed a few times, and afterwards expiration was accompanied by eructations, probably from air which had entered the cervical and thoracic portion of the œsophagus by aspiration before the preceding closure of the glottis. The child breathed quietly during four hours in the apparatus, but on removing it at the end of this time for purposes of cleanliness, it immediately became fearfully distressed for breath and quite exhausted, so that although it was instantly replaced in the apparatus, it ceased to breathe in 1½ minutes, and the tracheotomy performed on the spot was fruitless.

The autopsy showed that the lung-tissues were intact, a croupous membrane existing in the larynx and trachea towards the left bronchus; the lungs were fairly expanded, there was no atelectasis, intervesicular collapse, or sub-pleural emphysema; there was a light fine froth, the blood thin and fluid.

Case 3 was that of a boy, ætat. 2, who was attacked by a severe croup three days after the breaking out of the exanthem of measles; he was admitted into the hospital, and the author, profiting by the experience of the last case, tracheotomy was unhesitatingly performed, although the pneumatic apparatus was employed to relieve his breathing. Unfortunately, the child died sixty hours after the operation, from pneumonia.

From all these facts and experiences Dr. Hanke estimates the value of his pneumatic apparatus as next to that of tracheotomy, considered as a means of relieving difficulty of breathing; the most favourable cases are unquestionably those of localised laryngeal croup, and in such cases in which the openers of the glottis are paralysed, or the bronchi obstructed, it may at least be employed to gain time for preparations for tracheotomy. The pneumatic apparatus is indicated in all cases of respiratory dyspnœa and hyperæmic stasis of the systemic circulation, as also in the following conditions :—

(*a.*) In asphyxia, to precede artificial respiration.

(*b.*) In capillary bronchitis and catarrhal pneumonia, atelectasis, and chronic thickening of the lungs, to obtain deeper inspirations, and in this sense it may be employed as a prophylactic for hooping-cough.

(*c.*) In rachitis of the thorax, with strong efforts at each inspiration, to complete the act of breathing and increase the force of thoracic respiration.

(*d.*) In hyperæmia of the systemic circulation, and (by aiding the backward flow of the lymph), lymphatic tumours and exudations.

Some Observations on the Action of Cannabis Indica in Nocturnal Asthma (by Emil Koller).

Koller used this drug successfully in attacks of asthma, 5 or 6 drops of the tincture every three or four hours.—("Med. Chirurg. Centralblatt," Wien, 1876, No. 2.)

Action of Antiarine on the Organs of Circulation (by Professor Schrötter, Jun.).

Professor Schrötter corroborates the former opinions, that death follows paralysis of the heart, and moreover, states that the increase of blood-pressure is owing to the condition of the vessels and the unrhythmical beating of the heart which immediately precedes death. And as neither the division nor irritation of the vagus causes any change whatever in the course of the symptoms, it must be supposed that the antiarine has considerably lowered the excitability of the peripheral end of the nerve.—("Vierteljahrschrift für Practische Heilkunde," Prague, 1875, Vol. ii.)

The Treatment of Diphtheria (by Dr. E. M. Weiser).

The author recommends gargling with chlorine water (aq. chlori, 50: aq. chamomillæ, 500); and as a medicine, chlorate of potash (pot. chlor.: tinct. chinco. co. $\bar{\bar{a}}a$., 5: aq. rub. [tolar, 260), a tablespoonful every hour.—("Allg. Wiener Med. Zeit.," 1875, No. 39.)

The Treatment of Pharyngeal Diphtheria (by Dr. Hans Busenlechner).

The author recommends caustic agents, which have been since to some extent abandoned; painting the affected part with a strong solution.—("Allg. Wiener med. Zeit.," 1876, Nos. 15-18.)

Diphtheria in Mother and Fœtus simultaneously (by Horacek).

A woman suffering from diphtheria bore a child, in which the same disease was observed. The infant died on the third day.—("Med. Chirurg. Centralblatt," 1876, No. 130.)

On Apomorphia as an Expectorant (by Dr. Moritz Wertner).

Dr. Wertner used apomorphia internally (not subcutaneously injected) for children and adults with the most pleasing success. The expectorant action commenced about one or two days after its administration, without any other effects except that it is an eminently good cough-sedative. He exhibited it especially in cases of bronchial catarrh in the exudation stage, and he advises the smallest doses, *e.g.*, 0·01 to 0·03 grammes to 120·0 grammes of distilled water, of which a tablespoonful every two hours.—("Wiener med. Presse," 1876, No. 8.)

A Constantly-acting Apparatus for Respiration (by Dr. Johann Schnitzler).

This apparatus consists of a tin vessel, of an oval shape, open above, closed below, and measuring 75 centimetres in height, 54 centimetres in length, and 27 centimetres in width, in which are placed two tin cylinders, closed above and opened below, their height equal to that of the larger vessel, and their diameter 25 centimetres. From the cover of each cylinder projects a kind of dome, about 5 centimetres high, and through the centre runs a tube somewhat more than 2 centimetres in diameter, from the summit of the dome to the floor of the large vessel, which they pass through, and bending twice, at a right angle, end in a cock.

The cock is constructed of two brass plates, one of which is fixed to the apparatus, the other (the outer) turns on a middle tube, formed like a stopper, and called the "breathing tube." On the side of this there is a shorter tube of a similar diameter, and to the right and left of the breathing tube are the openings of those which come from the cylinders. The two plates have perforations, so placed that, as they are turned, the tubes may communicate with the cylinders. Attached to the breathing tube there is also a small pipe, 75 centimetres long, and 1 centimetre wide, provided with a mouth-piece, face-mask, and sliding-valve.

The two cylinders are connected by a cord, which runs over pulleys on the broadside of the outer vessel in such manner that the cylinders are always in equilibrium: one sinks exactly as much as the other rises. By means of an arrangement at the back of the apparatus two iron rods, with ring-like cups of the same metal, are so placed as to carry weights, and to move with great freedom. (This apparatus has much in common with that of Corbe and Weil.)

The use of the apparatus:—The two cylinders are so disposed that one rests on the floor of the larger vessel, and the other is in its highest position. The vessel is now filled with water to a height of 65 centimetres, so that the highest cylinder just touches the surface of the water. The cocks open during the filling are now closed, the trays with their weights lifted by means of a winch, and one cylinder weighted. This cylinder (the highest) will now sink to a distance corresponding to its weight, the other will simultaneously rise to the same extent, the result, of course, being that the air in the first cylinder will be compressed, and that in the other rarefied. A manometer communicating with the cylinder by means of the cock, shows the degree of compression and attenuation. The breathing tube communicates with one or the other cylinder, according to the position of the cocks, and therefore either compressed or rarefied air may be used as desired. If communication with the cylinder be shut off by turning the cock to 90°, the apparatus may be be used as a pneumatometer.

If now it be required to breathe condensed air, the breathing-tube of the upper weighted cylinder must be turned on. The patient holds the masks as closely as possible over his mouth and nose, and pressing down the valve inspires deeply, the compressed air passing through the tubes with a pressure corresponding to the weight on the cylinder. During *expiration* the mask may be removed. After from ten to twenty inspirations the first cylinder is down and the second up. Now, the sliding cock is turned to 180°, and the breathing-tube again communicates with the upper cylinder which is weighted anew, its contained air condensed, and so on.

The degree of condensation and rarefaction may be easily calculated thus:—The diameter of the cylinder is 25·25 centimetres; therefore the surface of each equals $v^2\pi$ (equals $12{\cdot}625 \times 12{\cdot}625 \times 344 = 500{\cdot}486$), or in round numbers 500 centimetres. Each centimetre that the cylinder rises or sinks will correspond to a ± volume of air of 500 cubic centimetres. The weight of an atmosphere for one square centimetre equals 1,033 grammes; therefore, with a surface of 500 centimetres it equals 516 kilog. Each kilog. of weight equals $\frac{1}{500}$ atmospheric pressure, therefore the 5 kilog. weight alone equals $\frac{1}{100}$ atmosphere, or 7·6 metres of mercury.—("Wiener med. Presse," 1876, No. 89.)

Climatology.

On the Essentials of Climatic Resorts for Invalids (by Dr. Schreiber).—Dr. Schreiber begins by mentioning the temperature, the degree of moisture in the atmosphere, the amount of ozone therein, and the atmospheric pressure, especially with regard to their importance in the choice of a resort for invalids; and arrives at the decision that no influence in this respect can be ascribed to these various conditions; that, on the contrary, the so-called "pure air"—*i.e.*, air containg much oxygen and free from impurities—especially of an organic kind—is the essential curative agent of such resorts. He shows that a very small decrease in the percentage of oxygen in the atmosphere (from the enormous quantity of air we daily respire) would cause a very serious difference in the amount of oxygen absorbed from the air breathed during one day. Further, that from the same reason the existence of trifling organic impurities in the air may give rise to real and serious disturbances, and he lastly explains that the essence of climatic treatment consists in nothing more than bringing the patient into a calm atmosphere free from dust, containing plenty of oxygen and without a trace of the presence of organic substances.—(Anzeiger der K. K. Gesellschaft der Aerzte in Wien, 1876, No. 26.)

Toxicology.

The Cause of Poisoning by Coal-Gas (by Dr. Emil Rochelt, Assistent an der Chirurg. Klinik zu Innsbruck).

The author communicates a case of poisoning by coal gas, which is interesting in many respects. A gaspipe running down the front of the street 2 ft. from the house had become damaged. The snow-covered and frozen ground allowed of no escape of the gas upwards; it therefore found its way in one direction into the house, of which the first-floor was inhabited by three persons—father, mother and child. The morning after the accident they were all discovered lifeless, but on carefully examining the man, weak, irregular, and reduplicated heart-sounds were just audible, which, after artificial respiration had been kept up vigorously for ten minutes, became stronger, and in half an hour were followed by breathing.

He was brought into the clinic, where he lay thirty-six hours, apparently asphyxiated, cyanotic and motionless, with superficial but regular respiration. A venesection gave dark red blood, in which the presence of carbonic oxyde was proved by means of solutions of caustic soda, and chloride of calcium; the same gas being also detected in the blood of the dead bodies by means of the spectroscope.

The urine drawn from the patient by a catheter gave a fraction of sugar, a slight power of oxydation being generated by the carbonic oxyde. Near the beds of the unfortunate individuals there were found some fragments of partially-masticated food, the beds themselves not being soiled—a circumstance tending to prove that this gas causes vomiting before loss of consciousness; as the man had been able to lean over the edge of the bed to vomit.

On the third day he moved his head and left hand slightly, and a light groan escaped him. Plants were placed near his bed, in order, if possible, to somewhat increase the amount of oxygen in the air surrounding him; he was fed with a stomach pump, and it was once thought desirable to perform transfusion. This, however, was not done, as, on the fourth day his improvement was so marked that he could make movements of swallowing, show his tongue, and move his limbs more strongly. His temperature was hitherto always over 38° Cent., but sank as respiration became normal; pulse more regular on the fifth day; articulation returned, though hoarse. On the ninth day his physical condition was good, but his mental functions were still much disturbed, memory weak, and great poverty of ideas; he was incapable of receiving information of facts, or of forming his opinions with regard to them, as also of most other kinds of mental effort.

This condition of mental weakness grew, in about three weeks, into complete imbecility. He could not stand or walk; left food untouched before him, although if it were placed in his mouth he would swallow greedily. He passed urine and fæces involuntarily. His skin was insensible to mechanical and electrical stimulants. This condition remained unchanged about 3½ months, after which time he gradually became more capable of noticing facts and circumstances, he began to eat, could retain his urine and motions, his memory grew stronger, he even began to speak a little, and sensibility and mobility returned. After a few more weeks he was able to walk out, and two months later he was quite cured and left the hospital in perfect physical health, and with his mental powers completely restored.—("Wiener med. Presse," 1875, No. 49.)

GERMANY.

(*Report by* ADOLPHE WAHLTUCH, M.D., &c., &c., Assistant Editor.)

ANATOMY AND PHYSIOLOGY.

The Muscles of the Larynx.—Dr. Max Führbringer in a pamphlet ("Beitrag zur Kenntniss der Kehlkopfmusculatur," Jena, 1875) treats very elaborately of the anatomy of the laryngeal muscles. He adopts a grouping of the muscles on a neurological basis, as follows :—

I. Group of innervation of the nervus hypoglossus and cervicalis descendens :

1. M. Omohyoideus (Cleido-omo-hyoideus).
2. M. Sternothyroideus (Sterno-costo-thyroideus).
3. M. Thyreohyoideus.
4. M. Hyoglossus.
5. M. Glosso-epiglotticus.

II. Group of innervation of the nervus vagus :

A. Muscles common to the pharynx and larynx (muscles innervated by the ramus stylo-pharyngeus, the branches of the plexus-pharyngeus, and the nervus laryngeus superior).

- *a.* Levator pharyngo-laryngeus, including M. Stylo-pharyngo-laryngeus.
- *b.* Sphincter pharyngo-laryngeus s. externus, viz. :—
  1. M. Constrictor pharyngis inferior (laryngo-pharyngeus).
  2. M. Crico-thyreoideus anticus.
  3. M. Thyreoideus transversus.

B. Muscles of the larynx proper (innervated by the nervus recurrens).

- *c.* Dilator laryngis, viz. :—
  1. M. Crico-arytænoideus posticus.
  2. M. Crico-thyreoideus posticus s. kerato-cricoideus.
  3. M. Kerato-arytænoideus.
- *d.* Sphincter laryngeus s. internus, viz. :
  1. M. Crico-thyreo-arytænoideus, composed of—
     - *α.* M. Crico-arytænoideus lateralis.
     - *β.* M. Thyreo-arytænoideus inferior.
     - *γ.* M. Thyreo-arytænoideus superior.
  2. M. Interarytænoideus, composed of—
     - *α.* M. Interarytænoideus obliquus.
     - *β.* M. Interarytænoideus transversus.
     - *γ.* M. Arycorniculatus rectus.

The following details are of importance :—

1. The grouping together of the constrictor pharyngeus inferior with the crico-thyreoideus anticus, which form together the sphincter pharyngo-laryngeus, is accounted for by the fact of both these muscles, as well as the thyreoideus transversus, being supplied by the external branch of the nervus laryngeus superior. Of all examined throats, in 68 per cent. the two muscles were found to be united—in 57 per cent. by direct interchange of fibres, and in 11 per cent. by a tendinous band. Such combinations of the two muscles were observed to be more frequent in women and children than in men.

2. The thyreoideus transversus is formed by all muscular fibres originating from or inserted in the lower edge of the thyroid cartilage. It is met with exceptionally, and is supplied by the nervus laryngeus superior. Führbringer saw this muscle in 9 per cent., and four times in one side only. In mammalia this muscle is rarely found.

3. Another rare muscle is the crico-thyreoideus posticus s. kerato-cricoideus, which originates from the broad part of the cricoid cartilage, and is inserted into the lower horn of the thyroid cartilage, and is supplied by the nervus recurrens. This muscle was present in only 2 per cent. of all examined larynxes. In mammalia it is also very seldom present. It is considered to be derived from the crico-arytænoideus posticus.

4. The kerato-arytænoideus muscle arises from the lower horn of the thyroid cartilage, and proceeds to the processus vocalis of the arytænoid cartilage ; it is also derived from the crico-arytænoideus posticus, and occurred in 6 per cent. of the larynxes.

5. The sphincter laryngeus s. internus forms in amphibiæ and reptiles only one circular muscle. The prominent arytænoid cartilages give rise to the posterior fibres, the interarytænoideus and a bilateral pair of muscles, the crico-thyreo-arytænoideus ; the last mentioned muscle consists again of three parts, the crico-arytænoideus lateralis, thyreo-arytænoideus inferior, and thyreo-arytænoideus superior. The last three muscles were found completely separated in 18 per cent., slightly united in 35 per cent., and inseparable in 46 per cent.

6. The arycorniculatus rectus (arytænoideus rectus s. depressor cartilaginis Santorini) first described by Luschka, is a small muscle, placed in the medial side of the arytænoid cartilage, and covered by the arytænoideus transversus muscle; it has been present in 31 per cent. of all examined larynxes.—("Schmidt's Jahrbücher," Vol. clxx., 1876, pp. 216-218.)

Diphtonia and Physiology of the Voice.—Dr. Schnitzler observed, in a case of polypous excrescence on one of the vocal cords that, during intonation of a given sound, the glottis appeared divided into two, and there could be heard a double tone, instead of a single one. According to the position of the excrescence the intervals of the two sounds are a third or a fourth. Against the generally accepted physiological explanation of the production of sound by the vibration of the vocal cords, Dr. Schnitzler regards, as the chief factor in the production of sound, the vibration of the column of air. The difference in the tone of the voice depends on the narrowness or amplitude of the glottis, and not on the length of the cords.—("Annali Universali di Medicina e Chirurgia," Ottobre, 1875, p. 91.)

Impulse of the Heart—Dr. Paul Guttmann, of Berlin, ("Virchow's Archiv.," Vol. xv., p. 537,) is of opinion that the impulse of the heart is effected by the recoil and the increase in size of the contracting heart. The apex-beat is produced by the recoil in the systolic movement of the heart downwards and forwards; the impulse of the base is the result of the systolic hardening of the cardiac muscles and the increase of the antero-posterior diameter of the heart. That the impulse of the base is under normal conditions not observed, and that the apex-beat is usually manifest, results from the apex lying close to the chest-wall, while the base is covered by pulmonary tissue, which interferes with the conduction of the impulse to the surface. This conduction of the impulse is, moreover, impeded by the backward movement of the base during systole, by the greater thickness of the chest-wall at the points corresponding to the position of the base (pectoralis muscle and fatty tissue). But the impulse becomes perceptible both at the apex and at the base, the heart-beats covering a larger area, in children with thin chest-walls, and in all cases where the heart comes in contact with a larger part of the thoracic walls; such as hypertrophia cordis, or in phthisis with retraction of that part of the left lung covering the heart.—("London, Med. Rec.," March, 1876, p. 107.)

Heart and Arterial Sounds.—Dr. Talma ("Beiträge zur Theorie der Herz- und Arterientöne," "Deutsches Archiv für Klinische Medizin," xv., pp. 77-98) gives a new explanation of the origin of cardiac and arterial sounds. He remarks:—

1. Weber found that liquids, flowing with moderate velocity through elastic tubes, produce sounds in any part of these tubes that happen to be narrower than the rest; but the origin of such sounds is not, as Weber thought, oscillations of the tube-walls, but the twirl or quick rotatory motion of the liquid particles near the narrowed spot.

2. It can be demonstrated by experiment that wherever there exists a continuous current of a liquid in an elastic tube, and the pressure is suddenly and for a short time increased in the beginning of the tube, a short murmur will be heard in the tube. This momentary murmur arises from the increased velocity of the current due to the higher pressure, and the friction between the liquid particles thereby becoming perceptible to the ear. The murmur is quite independent of any oscillation in the tube-wall, and is solely produced by the rapidity in *the* motion of the liquid particles.

3. Likewise the systolic sound heard in the aorta, pulmonary, and all the other great arteries, is not due to tension in the walls of the vessels, but to the velocity of the blood-current being increased with each contraction of the heart, and causing oscillations in the fluid. The systolic sound is not heard in the smaller vessels, owing to their small diameter and the fewer number of liquid particles, their friction being less, and, therefore, not perceptible to the ear.

4. The systolic sound of the heart is only partly muscular, the action of the valves being of no account, as they cannot produce any sound-waves. The systolic sound is greatly due to the liquid waves, occasioned by the rapid motion of the blood-current during the cardiac contraction, and the friction between the liquid particles facilitated by the uneven inner surface of the heart.

5. The diastolic sounds of the aorta and pulmonary artery are likewise produced by liquid waves, and, therefore, are not valvular sounds. Under normal conditions the diastolic sounds are of short duration, as the motion of the blood-current soon becomes interrupted by the closure of the semilunar valves. But in insufficiency of the valves the sound is prolonged, and becomes a diastolic murmur. It is only the duration of the sound on which is based the distinction between a cardiac sound or a cardiac murmur.—(" Medizinische Neuigkeiten," Erlangen, Sept., 1875, pp. 298-299.)

Physiological Changes of the Heart Sounds of Women in Child-bed.—Dr. Heinrich Fritsch, of Halle, communicates (" Archiv für Gynækologie," viii., 3, p. 373, 1875) some observations on the heart-sounds in women during the period of childbed.

1. There is frequently heard a soft murmur, accompanying or supplanting the first tone of the heart. Fritsch remarks that, according to the present views, the first tone of the heart is produced by the entrance of the blood-wave into the larger blood-vessels. After childbirth there is generally a relatively smaller amount of blood entering the heart, owing to diminution of intra-abdominal pressure; and thus the first tone is weakened down to a more or less soft murmur.

2. Fritsch further noticed in childbed women a double second tone, produced by a nonsynchronous closure of the two arterial orifices, due to an abnormal state of the blood-pressure soon after delivery, namely, there is increased pressure in the aortic system, and diminished pressure in that of the pulmonary artery.—(" Schmidt's Jahrbücher," Vol. clxix., 1876, pp. 40, 41.)

DIAGNOSIS.

Myoidema in Phthisical Patients.—Some years ago Lait Taston described a peculiar diagnostic sign in phthisis, called by him

"Myoidema." Dr. Landenberger, of Stuttgart ("Würtemberger Medizin. Korresp. Blatt.," 1875, No. 25) has verified and confirmed this symptom in hundreds of phthisical patients, especially in such as have considerably lost flesh in the course of their illness. In applying the finger end to the front wall of the thorax and slightly pressing and passing the finger downwards, the skin touched by the finger will rise, and in its neighbourhood waves of similar parallel elevations of the skin appear, though getting gradually less marked the further they are from the original elevation caused by the pressure of the finger; and these waves soon disappear. He explains it by a localised reflex action in the muscles, and found it more frequently in persons of nervous temperament, in irritable and in highly sensitive patients.—("Med. Neuigk.," Erlangen, Oct., 1875, p. 336.)

Pericardial Friction Sounds Influenced by Respiratory Movement.—Dr. Lewinski communicates (in the "Berliner Klinische Wochenschrift," Jan. 31, 1876) a case of pericarditis, the chief interest of which lies in the friction-sounds being loudest during expiration, and mentions another case where the pericardial friction-sounds were increased in strength during inspiration. He points to the diagnostic value of this observation with regard to distinguishing between pericardial and endocardial disease. Pericardial friction-sounds are increased in strength, whilst endocardial murmurs are weakened by respiration.—("Lond. Med. Rec.," May, 1876, pp. 199, 200.)

New Lamp Apparatus for Laryngoscopy and Rhinoscopy.—Dr. Scholl, of Dresden, recommends his new illuminating apparatus for laryngoscopic and rhinoscopic purposes, for which he uses petroleum. It consists of a burner with double peripheric and central apertures for passage of air, in connection with a reservoir, in which the level of the petroleum can easily be seen. With the aid of a cylindrical reflector, consisting of an earthenware cell, covered with carbonate of zinc, a brilliant and white flame-cone may be obtained.—("Allg. Mediz. Zeitung," 1876, No. 15.)

Pleurisy and Pneumothorax.—Prof. Dr. Gerhardt communicates ("Deutsche Zeitschrift für pracktische Medizin.," No. 15, 1876) some diagnostic observations on pleurisy and pneumothorax. According to Ewald, the only means of ascertaining the nature of a pleuritic effusion consists in the preliminary punction of the thorax. But G. Bacceli, in his pamphlet, "Sulla trasmissione dei suoni a traverso i liquidi endopleurici di differente natura," describes a new differential sign, based on the physical fact that the density of the fluid is in inverse ratio to the sound-waves produced therein. Dr. Gerhardt verified this view, and found the vibrations produced by the voice in the thoracic walls to be of less intensity when the effusion was of a purulent character than when of a serous nature. Gerhardt further observed, that in croupous pneumonia, pleuritic effusions are generally purulent, whilst in hæmorrhagic infarctus these are serous. In acute rheumatism there occur only serous pleuritic effusions. Gerhardt remarks that after the operation of thoracentesis, and the discharge of a large serous exudation, not only the affected side of the thorax, but also the healthy one diminishes in size. Gerhardt believes that a large serous effusion, in enlarging one half of the thorax, causes the other half to expand also, in order to give more play to the lung on the healthy side, as compensatory action against the compressed lung on the affected side.—("Mediz. Neuigk.," Erlangen, May, 1876, pp. 145-147.)

Incipient Pulmonary Phthisis.—No disease appears so destructive as pulmonary phthisis. In England about 50,000 persons yearly die from consumption of the lungs; and in Germany, out of a population of 43,000,000, every year 180,000 are the victims of this fatal disease. The treatment in the early stages promises to diminish the high mortality, and the symptoms of early phthisis are, therefore, of great importance. Dr. Aufrecht, of Magdeburg ("Allg. Med. Central Zeit.," December, 1875), draws special attention to the following early signs of disease being localised in the apex of the lung:—

1. Anæmia; 2. Chlorosis and amenorrhœa; 3. Pityriasis versicolor in the form of pale yellow or reddish spots appearing on the skin of the chest, neck and arms; 4. Rheumatoid pain in the arms. These pains come suddenly at night or early in the morning, and can be distinguished from real muscular rheumatism—(*a.*), by not being increased on moving the arms; (*b.*), by being localised, and having no tendency to spread elsewhere. Aufrecht considers the pain to be a reflex neurosis, occasioned by the inflammation passing from the lungs to the pleura, causing adhesion and acting on the intercostal nerves through the subpleural connective tissue, and thus producing reflex effects in the nerves of the shoulders and arms. He found the local application of iodine tincture to the skin between the shoulder-blades to give great relief, and subdue the pains; 5. Lower position of the acromial end of the clavicle in the affected part of the thorax.—("Med. Neuigk.," Erlangen, January, 1876, pp. 1-4.)

Pulse affected by Inspiratory Movements in various Thoracic Disorders.—Dr. Ch. Baeumler makes some observations ("Deutsches Archiv für klinische Medizin," xiv., p. 455, 1875) on the effect of inspiration on the pulse in thoracic disorders. There are two groups of cases in which the arterial pulse perceptibly to the touch may become smaller or nearly disappear during inspiration, owing to the diminished pressure in the aortic system.

1. Impeded free access of air into the lungs (increase of the negative inspiratory pressure).

2. Mechanical obstructions, manifesting themselves during inspiration, by which the blood is interfered with in its free flow into the

aorta, whereby the propulsory power of the left ventricle becomes lessened.

A. To the first group belong stenosis of the larger air vessels, especially laryngeal croup; and capillary bronchitis, in which the air is prevented from reaching the alveoli.

B. To the second group belongs the disease called by Griesinger and Kussmaul "paradoxal pulse"—a regular waning of the pulse during inspiration, with cardiac action; observed as a characteristic sign in mediastino-pericarditis with inspiratory swelling of the jugular veins.

Dr. Baeumler reports a case of waning pulse during inspiration with absence of mediastino-pericarditis, but in which the cardiac action although regular was not proportionate. In this case the patient suffered from hæmorrhagic pericarditis, with hæmorrhagic transudation into the pleuræ. There were no mediastinal adhesions, but the heart was continually under high pressure from the fluid contents in the pericardium and pleuræ, and such pressure was sure to increase with each expiration, and cause the cavities to be empty in the beginning of each inspiration.

Although the reported case illustrates a "pulsus paradoxus" occurring without simple pericarditis, the diagnostic symptom of mediastino-pericarditis remains valuable when the paradoxal pulse is accompanied with a swelling of the veins of the neck during inspiration.—("Schmidt's Jahrbücher," Vol. clxx., 1876, p. 60.)

Photographic Representation of the Pulse and Respiration.—Dr. S. Th. Stein, in a paper read before the Physical Society of Frankfort-on-the-Maine, explained his method of graphic representation of the pulse and respiration by means of photographic illustration. He referred to the known fact that a person sitting quietly on a chair with one leg crossed over the knee of the other will soon notice a rythmical and visible up and downwards movement in the foot of the free leg overhanging its fixed fellow. This movement is due to the pressure on the popliteal artery of the upper leg occasioned by the knee of the lower one. With each contraction and dilatation of the heart the blood-current strikes with more or less force on the compressed artery of the knee and causes the up and downward movement of the leg. The arteries of the forearm possess a much weaker, scarcely perceptible analogous power. If we place a flat button over the radial artery, and fix it by means of an elastic band to the wrist, and connect the button by an elastic spring with a one-armed lever, pressure will be exercised upon the artery, and the blood-wave will be slightly arrested, and with each contraction of the heart the button must rise and fall. Now the one-armed lever of whalebone is articulated at one end with the upper part of a vertical metallic rod resting on the button, and to the other free end is attached a blackened piece of cardboard about an inch square with a small opening in the centre. The movement, communicated to the button by the blood-wave in the radial artery, will cause the lever with its cardboard to move up and down. A ray of light is now allowed to pass through the small aperture in the cardboard towards a square of opaque ground glass, where it will leave the light impression in the focus of a small and light dot, which, with the movement of the cardboard on the lever, will appear as curved lines. A band of sensitive photographic paper is made to turn and pass over the surface of the glass, and the dot of light during a pause of the heart's action will be photographed as a line on the paper, whilst the blood-waves will be represented permanently as curves, of which the height will indicate the force and the width—the time or duration of the blood-wave. Thus—*e.g.*, if the photographic curve produced in fifteen seconds was 15 centimetres long, 1 centimetre high, and consisted of 19 elevations, it must correspond to 76 pulse beats, and the force of the pulse can be easily estimated by comparing the height of the curve with different other curves produced in health and in disease. Dr. Stein calls his apparatus "Photosphygmograph." In a similar way he succeeded in photographing besides the pulse also the respiratory and other movements in the human body. Dr. Stein also made use of his photosphygmograph in making physiological experiments with the manometer to study the pressure in the arterial system in various animals.—("Med. Neuigk.," Erlangen, Oct., 1875., pp. 315 and 316.)

PATHOLOGY AND MORBID ANATOMY.

On Phthisis.—Dr. Paul Niemeyer ("Medizinische Abhandlungen, 3ter Band: Grundzüge einer klinischen Hygiène und Diätetic") in speaking of phthisis is of opinion that the treatment ought to be at the earliest stage such as is generally adopted when the disease is already far advanced. He further expresses the following views:—

1. Tubercles and tuberculosis are anatomical specialities, having only a theoretical value with regard to clinical medicine and practical therapeutics.

2. Phthisis is the commonest form of degeneration of civilised society.

3. Its frequency is in direct ratio to the density of the population and the deleterious habits of civilised life.

4. Its occurrence has no relation to climatic conditions, and may develop in all latitudes and altitudes of the inhabited globe, where unhealthy habits of civilised social life are adopted.

5. It is more often acquired than inherited.

6. Heredity is only the disposition, consisting in general weakness, and in deficient heat production.

7. A feeble constitution may, but need not, necessarily become con-

sumptive. But under given circumstances a weak person will sooner be affected than a stronger one. The most critical years are between the ages of 15 and 25.

8. The signs of phthisis may be distinguished as general, and as specially pathological.

9. The specially pathological symptoms begin with an abnormal shape of the thorax and the consecutive functional disturbances and gradual destruction of the lungs.

10. Pulmonary-apex-phthisis ought to be the correct designation of pulmonary consumption.

11 The prognosis depends on the shape of the thorax.

12. The chief point in the treatment during the stage of predisposition is the prophylactic. In already developed pulmonary-apex-phthisis with a narrow built thorax, all that can be done is to control the rapid destruction: moderate exercise, pure air, wholesome diet, cleanliness of the skin, etc.—("Mediz. Neuigk.," Erlangen, Nov., 1875, p. 368.)

Tuberculosis.—Prof. E. Rindfleisch considers scrofula to be the basis of tuberculosis. He looks upon the abnormal relation of the mass of blood to the weight of the whole body, as the fundamental ingredient, which is combined with an abnormal vegetative state. Inflammation anywhere suffices, owing to the re-absorption of the inflamed matter, to call forth the eruption of numerous metastatic inflammatory deposits —the miliary tubercle.—("Med. Neuigk.," Erlangen, December, 1875, pp. 385-387.)

Tuberculosis in Animals.—Professor Bollinger, in a paper read at the Pathological Institute of Munich (Aerztliches Intelligenzblatt, 1875, p. 47), discusses the views held by Simon, Virchow and others, ten years ago, denying the existence of tuberculosis in all animals except the ape. Bollinger showed pathological specimens, proving the incorrectness of such views:—

1. A tubercular lung of a pig, and a tubercular costal pleura of another pig; he remarks that, in South Germany, tuberculosis is rarely met with in pigs, while in North Germany it is of more frequent occurrence, and he explains this difference by the management of pigs, which in the north are kept in dark places, and allowed very little exercise, in order to fatten them. The etiology of tuberculosis in the case of pigs is, therefore, analogous to that of men, as the disease generally develops readily in persons kept in seclusion in prison.

2. Specimen of tubercles in a cat. A cat, kept in a family nine years, during which time she never was ailing, happened to be bitten in her neck by a dog; the wound never healed, and soon formed a fistula; the cat began to cough, to lose flesh, suffered from diarrhœa, and when quite emaciated, was killed. The post-mortem examination discovered a cheesy mass between the muscles of the neck in the depth

of the fistula; evidently from this spot emanated and spread the tubercular disease, as miliary tubercles were found in the lungs, kidneys, liver and spleen. The cat was known to come from healthy parents, and, previously to the bite by the dog, always to have enjoyed good health. Bollinger further states that, of neat cattle about 2 or 3 per cent. suffer from tuberculosis; and he also showed some pathological specimens of miliary tubercle in neat cattle. In other domestic animals, such as sheep, goats, and dogs, tubercular disease is very rare.

Bollinger also relates several cases of goats being inoculated with tubercular matter from a man, and also from a cow, and in both cases the goats exhibited miliary tubercles in the peritoneum, and the mesenteric glands, and tubercular ulcers in the intestines.—("Med. Neuigk.," Erlangen, December, 1875, pp. 401-403.)

Pneumonia.—Dr. E. Aufrecht ("Deutsche Zeitschrift für pracktische Medizin," 1875) considers all varieties of pneumonia as having the same characteristic mode of development. Pneumonia begins with an increase of the alveolar epithelium, followed by serous transudation and hyperæmia. Red hepatisation is but a hæmorrhage produced by the exposure of the pulmonary capillaries owing to the separation of alveolar epithelium. Aufrecht considers the varieties, genuine, asthenic, and desquamative pneumonia, to be identical pathologic or anatomical phenomena, only presenting different courses, and consequently different results.—("Med. Neuigk.," Erlangen, March, 1876, p. 104.)

Changes of the Alveolar Epithelium in Chronic Broncho-pneumonia.—Dr. E. Aufrecht, of Magdeburg ("Allg. Med. Centr.-Zeit., 1875, No. 38). Microscopic studies of the changes of the epithelium in the pulmonary alveoli throw a new light on this subject.

In broncho-pneumonia the alveolar epithelium is much swollen and opaque, owing to the presence of fine nucleoli and fatty particles, and thus it becomes easy to study the condition of the epithelium inside the alveoli. Aufrecht concludes from his observations that:—"The pulmonary alveoli are coated with a net of elastic fibres, of which the knotty points are covered by isolated nuclei, and the meshes are entirely filled with alveolar epithelium."—("Med. Neuigk.," Erlangen, Sept., 1875, pp. 308, 309.)

Embolism of the Branches of the Pulmonary Artery and the Condition of the Lungs.—Professor Julius Cohnheim and Dr. M. Litten (Virchow's Archiv, lxv., 1875, p. 99) conclude from experiments on living animals:—

1. Artificial embolism of a branch of the pulmonary artery is generally accompanied by a hæmorrhagic infarction; the part of the lung-tissue between the plug and the infarction remaining unchanged.

2. The branches of the pulmonary artery nowhere form anastomoses, and are demonstrated to be final arterioles.

3. The nutrition of parts of the lung occluded by embolic pulmonary arteries can only be carried on by the blood derived from the capillaries in the neighbourhood; the nutritive power is acquired by the venous blood in the capillaries becoming arterialised owing to its being exposed to the contact of the respiratory air.

4. The formation of hæmorrhagic infarction is facilitated by abnormal weakness of the capillary circulation, and also by abnormal obstructions in the pulmonary veins. These conditions will exist wherever embolic plugs are frequently carried into pulmonary arteries, in weakness of the right heart (fatty heart or after prolonged fever.) Valvular diseases of the left heart, by obstructing the discharge of blood from the pulmonary veins, may likewise produce hæmorrhagic infarction.—(" Schmidt's Jahrbücher," Vol. clxix., 1876, pp. 30, 32.)

Grass-green Sputum.—Dr. O. Rosenbach, of Jena, reports (in the "Berl. Klin. Woch.," Nov. 29, 1875) a case of a new variety of grass-green sputum as observed in a patient suffering from bronchial asthma. He found in the expectoration a large number of pointed octahedral greenish crystals. The sputum was muco-purulent, having a neutral reaction. Under the microscope the coloured parts consisted of solitary spores and conglomerations of sporules and numerous and active vibriones. Some of these green sporules were successfully grown in milk and also in phthisical sputa.—(" Lond. Med. Rec.," Jan., 1876, p. 15.)

Valvular Heart Disease and Phthisis.—Dr. E. Frommolt sums up his clinical observations ("Deutsche Zeitung für Practische Medizin.," 1875), on the relative occurrence of heart disease in phthisis, as follows:—

1. Synchronous existence of valvular cardiac affection and pulmonary consumption is not of such rare occurrence as is generally believed.

2. Diseases of the left arterial ostium are less frequently met with in phthisis than those of the left venous ostium.—("Med. Neuigk.," Erlangen, May, 1876, p. 164.)

Arhythmic Cardiac Action.—Prof. H. Nothnagel distinguishes four varieties of arhythmic cardiac action (" Deutsches Archiv. für Klinische Medizin," Bd. xvii.):—

1. Pulsus bigeminus—a longer pause after two heart contractions, and pulsus alternans—high pulse, long pause, low pulse, short pause.
2. Periodical irregularity, with a characteristic type.
3. Complete irregularity—delirium cordis.
4. Intermittent heartbeats, with occasional cessation of the pulse-wave.

The patients frequently, but not in all cases, experience a distinct sensation of the abnormal action of the heart, a feeling of stoppage of the heart-beats combined with a distressing anguish, and sometimes uneasy sensations in the digestive organs, great hunger, and the desire to yawn. Arhythmic action of the heart may result from different causes, and may occur in cerebral diseases, in neurotic disorders, in exhaustion or fatigue of the cardiac muscles, in feverish disorders, or in organic heart affections.

Traube considers the pulsus bigeminus and alternans as very grave prognostic symptoms, as they indicate paralysis in the spinal inhibitory nervous centre, and also increased action in the cardiac inhibitory nerve centre. — ("Med. Neuigk.," Erlangen, May, 1876, p. 164.)

MEDICINE AND SURGERY.

Granulations in the Larynx after Tracheotomy in Diphtheria.—Dr. Koch, of Berlin (" Deutsche Medizinische Wochenschrift," April and May, 1876,) relates a case of a boy, aged 3½ years, on whom he performed tracheotomy for the relief of dyspnœa in diphtheria. The dyspnœa returned in a month, and again in two months, and the operation of tracheotomy had to be repeated both times. The cause of dyspnœa was renewed growth of granular tumours in the larynx. Dr. Koch remarks, that the granulations in the immediate neighbourhood of the tracheal wound appeared to grow exuberantly and to penetrate into the trachea; the inspiratory effort must act energetically on the vessels of the granulations and lead to their distension with blood and œdematous effusion, as was shown by the bag filled with serum, found during the second operation. Dr. Koch considers ulceration of the trachea produced by pressure of the canula as one of the causes of granulation-growth after tracheotomy.—(" Lond. Med. Rec.," June, 1876, p. 281.)

Rheumatic Affection of the Joints; a Sequel in Bronchiectasis.—Dr. C. Gerhardt mentions two cases of bronchiectasis in which the joints severally became inflamed, and in one case also endocarditis and mitral insufficiency occurred. He explains such sequelæ by a reabsorption of decomposed pus into the blood. In both patients the arrested expectoration became free under the application of the author's method of compression of the thorax during expiration. Dyspnœa, and fever also soon disappeared.—(" Med. Neuigk.," Erlangen, Sept., 1875, p. 288.)

Pneumopericardium Traumaticum.—Dr. Leonpacher, of Traunstein, reports (in "Aerztliches Intelligenzblatt," No. 44, 1875) a case of the presence of air in the pericardium through the rupture of an old adhesion between the lungs and the pericardial sac after a fall. The patient, aged 36 years, always enjoyed good health till he met with an accident in falling from a hay-loft and striking his back violently against the ground. He complained of shortness of breath and pain in the left side. There was sanguineous subcutaneous extravasation in the back, which disappeared on the fifth day. Loud gurgling sounds, intermittent with the normal cardiac sounds, could be heard even at some distance from the patient. There was a tympanitic area on percussion, corresponding with the position of the pericardium. Dulness on percussion in the back, between the spine and the lower end of the left scapula, and, on auscultation, occasional rhonchus, but no respiratory murmurs could be heard. There was a slight cough on the fifth day, the dulness in the back subsided, and respiration became clear, and in a few weeks the patient completely recovered. There was no pain in swallowing, nor any other abnormal symptom.—("Lond. Med. Rec.," April, 1876, pp. 162, 163.)

Non-synchronous Contraction of the Cardiac Ventricles.—Prof. E. Leyden, of Strassburg, communicates (in "Virchow's Archiv," lxv., p. 153) two cases of non-synchronous action of the ventricles of the heart. Both patients suffered from mitral insufficiency, with hypertrophy and dilatation of the right ventricles. On palpation the heart-beat could be felt twice in quick succession followed by a pause—the diastole. The first systolic beat of the cardiac apex could be felt also in the arterial pulse, whilst the larger veins of the neck and the liver increased in volume; the second systolic beat could not be felt in the arteries, but the veins of the neck and liver refilled again. Leyden explains this by a double contraction of the left ventricle.—("Med. Neuigk.," Erlangen, Jan., 1876, p. 32.)

Paracentesis Thoracis by Aspiration.—Drs. Tutschek and Zaggl communicate (in the Munich Aerztliches Intelligenzblatt," Oct., 1875) their experience in the treatment of pleuritic effusion and empyema by using the pneumatic aspirator. The subjoined tabulated account is of great interest.—("Lond. Med. Rec.," March, 1876, pp. 108, 109):—

Tabular Statement of Twenty-six Cases of Paracentesis Thoracis by means of the Pneumatic Aspirator in Cases of Serous Effusion into the Pleural Cavity.

Number of Case.	Sex.	Age.	Side affected.	Duration in days of effusion before first puncture.	Number of operations.	Quantity of fluid removed in ounces.	Colour, etc., of the fluid.	Per centage of solid constituents in dried condition.	Result.	Period in days till cure or death.	Remarks.
1	M.	21	Left	15	4	I.-14 II.-49 III.-27 IV.-26	Yellowish	I.-10 II.-12·8 III.-12 IV.- 6	Died	117	Cheesy-masses lungs. Tube cular ulcers bowels.
2	M.	21	Right	32	3	I.-68 II.- 1½ III.- 5	Greenish-yellow	I.-10 II.- 2 III.- 4·3	Died	57	Effusion becam purulent; end carditis.
3	M.	23	Left	32	1	38	Yellowish	12	Cured	28	..
4	M.	23	Right	39	1	37	Pale yellow	6	Cured	21	..
5	M.	22	Right	13	1	38	Greenish	5	Cured	44	Inter-current ga tric disease.

Number of Case.	Sex.	Age.	Side affected.	Duration in days of effusion before first puncture.	Number of operations.	Quantity of fluid removed in ounces.	Colour, etc., of the fluid.	Per centage of solid constituents in dried condition.	Result.	Period in days till cure or death.	Remarks.
6	M.	22	Left	38	1	35	Sanguinous	5·7	Cured	39	Slow convalescence.
7	M.	21	Right	24	1	80	Yellowish	8·3	Cured	10	..
8	M.	29	Left	18	1	62	Yellowish	7·3	Cured	10	..
9	M.	25	Right	27	1	64	Yellowish-green.	5·6	Cured	10	..
10	M.	12	Right	39	1	4½	Yellowish	6·9	Cured	19	..
11	M.	22	Left	25	1	35	Greenish-yellow	6·4	Cured	7	..
12	M.	21	Left	31	1	34	Yellowish	6·6	Cured	18	..
13	M.	22	Right	31	1	30	Yellowish	7·7	Cured	11	..
14	M.	32	Right	15	2	I.-33 II.-30	Greenish-yellow	?	Died	70	The effusion was cured. Tubercular pleurisy of left side, and miliary tubercles in peritoneum.
15	M.	20	Right	7	1	15	Yellowish	12·5	Cured	20	..
16	M.	17	Right	7	3	I.-30 II.-30 } pus. III.-30 } pus.	I.-Yellowish II.-	8·4	Died	106	..
17	M.	64	Right	26	1	33	Yellowish-green	6·2	Died	61	..
18	M.	57	Right	38	1	28	Pale yellow	7·9	Cured	28	..
19	M.	53	Right	15	1	49	Yellowish	8·3	Died	22	Became purulent.
20	M.	24	Right	35	1	29	Much blood in it.	8·8	Cured	38	Tedious convalescence.
21	M.	27	Right	22	1	82	Greenish-yellow	7·3	Cured	8	..
22	F.	32	Left	70	1	A wine bottle	?	?	Relief	..	Died eight months afterwards of phthisis.
23	M.	21	Left	14	1	21	Pale albuminous	?	Cured	30	No relapse.
24	F.	48	Right	28	1	50	Very albuminous	?	Cured	28	..
25	M.	21	Left	4 or 5 months	1	Only exploratory: a few drops of pus.	..	?	Died	90	Operation with knife and drainage tube. Great relief, but marastic symptoms set in, and he died of apoplexy. (?)
26	M.	24	Left	6 days.	2	I.-3 beer glasses of bloody serum. II.-A great quantity of pus.	..	?	Cured	..	Complicated with subcutaneous emphysema and pneumothorax.

Thoracentesis.—Dr. Ewald gives the following results of his experience of this operation in a paper published in the "Charité Annalen" for 1874 (Berlin, 1876):—

1. Serous effusions should not be punctured before the third week, except to avert imminent death. Puncture in the third or fourth week is most favourable as to mortality and prognosis.

2. If puncture be made with exclusion of air and disinfected instruments, no serous effusion will putrify.

3. It must be proved by exploratory puncture whether a pleurisy is purulent or serous.

4. Purulent pleurisy should be incised as early as possible, and not punctured.

5. The mortality after incision for empyema is between 50 and 60 per cent.

6. Bloody exudations have been always caused by malignant new formations in the pleura.

7. Serous exudation does not exclude the existence of tuberculosis or cancer of the pleura.—("Lond. Med. Rec.," Feb., 1876, p. 70.)

Total Extirpation of the Larynx.—Dr. B. v. Langenbeck relates ("Berl. Klin. Woch.," 1875, No. 33,) an interesting case of a successful total extirpation of the larynx, os hyoides, a part of the tongue, pharynx and œsophagus. A man, aged 57, suffering from dyspnœa and hoarse during 4 years, when examined with the laryngoscope showed an abscess between the vocal cords and a defect in the left arytænoid cartilage. Tracheotomy gave only temporary relief. The larynx increased in size, the lymphatic glands in the left inframaxillary region became much swollen; dysphagia was very troublesome. The operation of total extirpation of all the parts mentioned above was successfully performed, by Dr. Langenbeck, and a week after, the patient was perfectly free from fever, and his breathing easy.—("Med. Neuigk.," Erlangen, Oct., 1875, p. 326.)

New Mode of Operation of Staphyloraphy.—The generally adopted methods in performing staphyloraphy have an inconvenient result with regard to the clearness of speech, which proceeds, as Passavant thinks, from the shortness of the velum palati, and insufficiency in the closing of the communication between the pharyngo-nasal and oral cavities. Dr. Schoenborn ("Allg. Med. Cent.-Zeit.," 1875, No. 89,) obviates this impediment to clear speaking generally following the ordinary operation, by uniting both halves of the velum with a square piece dissected from the back wall of the pharynx.—("Med. Neuigk.," Erlangen, Nov., 1876, p. 384.)

MATERIA MEDICA AND THERAPEUTICS.

Cumarin.—Professor H. Koehler, of Halle ("Med. Cent. Blätt.," xii., 1875), concludes, from experiments made with cumarin ($C_9 H_6 O_2$)

that the effects on cold and warm-blooded animals are the same, whether given per os or injected into the jugular vein; namely, paralysis of the vasomotor centres, and also of the heart, in a lesser degree the retardation of the circulation and respiration, and lowering of temperature.—("Schmidt's Jahrbücher," No. i., 1876, Vol. clxix.)

Jaborandi.—Dr. F. Riegel, of Cologne ("Berl. Klin. Woch.," 1875), tried, in pleurisy, pneumonia, influenza, etc., the excellent diaphoretic and sialogogue effects of Jaborandi, and found no increase of temperature in his patients.—("Med. Neuigk.," Erlangen, July, 1875, p. 248.)

A. W. Gerard succeeded in preparing a nitrate and muriatic salt of the alkaloid of Jaborandi, which he called Pilocarpin—0·03 gram. (nearly ½ grain) produce the full physiological effects of Jaborandi.—("Med. Neuigk.," Erlangen, Aug., 1875, p. 256.)

Salicylic Acid and Salicylate of Soda. Various Opinions.—1. Dr. Buss ("Archiv für Klinische Medizin," Vol. xv.) states that salicylic acid can, after its administration, be detected in the sweat, saliva and sputa by means of tests, especially diluted liquor ferri perchloridi, which produces a dark violet colour. Dr. Buss gives the acid in doses of 30 grains with 15 grains of sugar in water or in a wafer.

2. Dr. Senator, of Berlin, gave the acid to a number of hectic phthisical patients, in some of whom the hectic fever was reduced.

3. Dr. A. Nathan ("Deutsche Zeitschrift für pracktische Medizin," No. ii., 1876) gave the salicylate of soda in a case of hectic fever; it produced perspiration with subsequent comfort to the patient. Nathan further remarks, that the acid or the salt generally retard respiration.

4. Dr. L. Riess ("Berliner Klin. Woch.," Nos. 50 and 51, 1875) has given salicylic acid with good effect in thirty-two cases of phthisis. The effect was more certain when given during the natural fall of temperature.

5. Dr. A. Bertholet, of Dresden ("Archiv der Heilkunde," Heft ii. and iii., 1876), has given salicylic acid with success in one case of pulmonary gangrene.

6. Dr. J. Steinitz, of Breslau ("Allg. Med. Centr.-Zeit.," February, 1876), has given salicylic acid in thirty-four cases of scarlatinal diphtheria, and in eleven cases of genuine diphtheria, occurring in children. It was administered every hour or two in doses of 1½ to 3 grains in sugared water. Most of the cases were accompanied with severe fever. From ten to fifteen doses were sufficient to arrest the fever and also the diphtheritic process. Only two cases ended fatally.

7. Dr. W. Wagner ("Journal für pracktische Chemie," Vol. ii., 1875) treated fifteen cases of diphtheria in children with very favourable results and no deaths. He gives to older children

a gargle of 1·5 parts of the acid with 15 of spirit of wine and 150 of water, and to younger children a solution of 2 or 3 grains of acid in water every two hours.

8. Drs. R. Buch and H. Schultz ("Allg. Med. Centr.-Zeit.," February, 1876,) speak very favourably of the treatment of diphtheria with salicylic acid internally and locally.—("Lond. Med. Rec.," May, 1876, pp. 193—199.)

Action of Aconitin on the Heart.—Dr. Lewin ("Centr.-bl. für Med.," No. xxv., 1875) concludes from experiments on frogs that aconitin diminishes the number of heart-beats ending in an arhythmical action of the cardiac parts. He further observes that the effect is produced by the aconite acting directly on the ganglia of the heart and not by affecting the medulla oblongata. The arhythmical pulse, he thinks, is caused by the unequal distribution of the aconitin in the blood, and consequently the unequal and non-simultaneous effect of the poison on the one or the other cardiac centre.—("Lond. Med. Rec.," Sept., 1875, p. 521.)

Nitrogen Gas Inhalation in Chronic Pulmonary Tuberculosis.—Dr. Steinbrück's experience with the therapeutic effects of nitrogen gas inhalation in chronic pulmonary tuberculosis leads him to the following conclusions:—In the first stage, the prolonged use of nitrogen inhalations has curative effects; in the second stage, the inhalations give great relief and often lead to a cure, especially in very young persons; in the third stage, the inhalations are injurious and dangerous. The effect of nitrogen gas inhalations consists in soothing the nervous system, in allaying nervous irritability, in lowering the temperature and the circulation. After the inhalation the patient goes to sleep soundly and on awaking feels hungry, and digestion is greatly improved. He gradually increases in weight, and gets stronger within a few weeks of such a treatment, and the physical examination of the chest shows a gradual improvement in the local symptoms.—("Allg. Wiener Med. Zeit.," 17, viii., 1875, p. 306.)

Epistaxis.—Dr. Böttger, of Dessau ("Memorabilien," 1875, 11) recommends, as a very effective means of arresting nasal hæmorrhage, the plugging of the nostrils with small balls of lint previously dipped in a mixture of creosote and alum-powder.—("Med. Neuigk.," Erlangen, Feb., 1876, p. 72.)

Pneumatic Chambers.—Dr. von Liebig, of Reichenhall ("Berl. Klin. Woch.," 1875, No. 29), communicates his studies on the therapeutic action of compressed air in the pneumatic chamber, which always effects an increased introduction of oxygen into the system. He relates the beneficial effect produced in children from ten to fifteen years old suffering from bronchial asthma, and in which a few sittings sufficed to produce amelioration and even complete recovery. In raising the pressure of the air to 32 centimetres (mercurial barometer), he observed that the respiratory act and the quantities of interchanged volumes of air became diminished, whilst more oxygen was inhaled and less carbonic acid exhaled.—("Med. Neuigk.," Erlangen, Nov., 1875, pp. 361-363.)

MISCELLANEOUS.

Silica-dust Inhalation.—Dr. Adolf von Ins communicates ("Archiv für experimentelle Pathologie und Pharmakologie," v. 3, p. 169, 1876) his experimental researches on the effects of silica-dust (sandstone-dust) inhalation. He experimented with thirteen dogs kept by him in an artificial atmosphere of silica-dust from seven to sixty-five days. The results of his observations are as follows:—

The dust provokes in the alveoli a catarrhal inflammation. The cell elements (formed by white blood-corpuscles and not by alveolar epithelium) emanate from the alveolar capillaries and carry the dust particles into the pulmonary tissue by way of special pores. The bronchial glands are reached by the dust through the lymphatics. The migration of the dust particles to the glands occurs during the time of inhalation. Within the lung-tissue the dust particles are found in the stroma, especially where it is more developed. In the bronchial glands the dust particles first arrive in the lymphatic sinus, rapidly enter the follicles, fill their periphery, and gradually approach the central parts, whence they are slowly brought to the hilus (it takes more than four months before they reach the latter.)

Whilst there are only traces of silica to be found in normal lungs, 5 to 17 per cent. was the amount of silica with the inhalations. Carbonate of lime formed a second constituent of the dust, amounting to 40 per cent. This is taken up by the lungs and continually dissolved by the carbonic acid of the blood and quickly carried off.—("Schmidt's Jahrbücher," Vol. clxx., 1876, p. 185.)

ITALY.

(*Report by* ADOLPHE WAHLTUCH, M.D., ETC., ETC.,
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ANATOMY AND PHYSIOLOGY.

Dextro-cardium.—Dr. Francesco Orsi ("Gazetta Medica Italiana Lombarda," 29 Gennajo, 1876) relates the case of a lady, aged 57, admitted into the clinical hospital of Pavia with occipito-frontal neuralgia, and who on examination presented the heartbeat on the right side, and all the organs of the thorax and abdomen completely transposed. Dr. Orsi states his reasons for considering this a congenital condition of the dextro-cardium, especially as follows:—

1. The patient since her infancy recollects having always felt the heartbeat on the right side.
2. She has always enjoyed good health, and when examined no pathological changes could be detected in the chest organs.
3. In a concrete case congenital dextro-cardium may be diagnosed, when the heart is found to have an oblique position with the base turned upwards and inwards, and the apex directed downwards and outwards; whilst, in ectopia cordis, owing to pleuritic effusion or mediastinal tumors, the heart is never placed in such an oblique direction.
4. Finally, the transposition of all the other thoracic and abdominal viscera may in all cases be the criterion of the congenital nature of the dextro cardium.—("Annali Universali di Medicina e Chirurgia," Milano, iii., 1876, p. 210.)

Influence of Respiration on the Blood Pressure.—Prof. Aristide Stefani, of Ferrara, concludes, from his experiments on dogs, that the blood-pressure increases with the arrest of respiration. He further considers it proved that the changes in the composition of the blood caused by the arrest of respiration constitute a stimulus to the vasomotor centres of Remak's ganglia, and to the centres of origin of the nervi vagi.

In a therapeutic direction his experiments are useful in showing that artificial respiration is indicated in apoplexy, not merely for the purpose of prolonging life, which is endangered by compression of the respiratory centre, but as the best means of lowering the blood-pressure, and thus arresting hæmorrhage.—("Rivista Clinica di Bologna," Aprile, 1876, pp. 97-104.)

DIAGNOSIS.

Auscultation of the Cavity of the Mouth in Thoracic Affections.—Dr. Ercole Galvagni recommends auscultation of the cavity of the mouth in chest diseases, and remarks that the sounds became much more distinct and loud, by means of buccal auscultation, than is the case when the stethoscope is applied to the thorax or trachea. He explains this observation in the following manner: the sounds received through the thoracic walls become weakened by the lung-tissue and other heterogeneous parts interposed between the seat of disease and the ear; whilst such sounds reach the cavity of the mouth much more easily through the column of air contained in the respiratory tubes from the smallest ramifications of the bronchi upwards to the mouth; and these sounds also become intensified by the vaulted construction of the pharynx and mouth, which favours the reverberation of sound.

The auscultation of the buccal cavity in various chest affections, by Dr. Galvagni, gave the following results:—

1. In pneumonia the sound was rarely heard better by buccal than by thoracic auscultation, except in the stage of suppuration.

2. The sound by mouth was much more distinct in four cases of capillary bronchitis, and in one case of acute pulmonary tuberculosis.

3. Auscultation by the mouth is of the greatest diagnostic value in early cases of phthisis, when no other signs but a slight cough, with blood-spitting, direct the attention to the nature of the disease.

4. Dr. Galvagni suggests this method of auscultation in animals as more convenient than that by thoracic examination.—("Wiener Med. Jahrb.," 1875, Heft. iii.)

Transmission of Sounds through Pleuritic Effusions.—Dr. Baccelli, of Rome ("Sulla trasmissione dei suoni attraverso i liquidi endopleurici di differente natura, Archivio di Medicina," etc., di Roma, 1875, disp. 7a e 8a) divides pleuritic effusions into three categories:—

A. Thinnest fluid—serum with a variable quantity of albumen and salts.

B. Thick fluid—rich in fibrine, albumen and salts, and also containing granular cells.

C. Thickest fluid—rich in albumen, fibrine, fat and salts, and also containing large masses of purulent cells of a globular form.

Dr. Baccelli observes that the auscultator will hear the sounds transmitted best in the thinnest fluid, less distinctly in the thick, and not at all in the thickest. He derives from these facts the following corollaries:—

1. The vibrations of sound proceed in inverse ratio to the density, contents of corpuscles and heterogenesis.

2. The slight areometric differences do not explain such a difference of conductive power.

3. The conduction of sound is much impeded by the morphological heterogenesis and presence of corpuscles.

4. The heterogenesis of the fluid is in proportion to the quantity of pseudomembranous detritus, and of fibrinous and albuminous coagulation, and consequently to the presence of leucocithes, of epithelioloid, pyoid and purulent cells.

5. The external characteristics of a fluid do not often reveal its intrinsic nature, which can only be ascertained by microscopic analysis.

6. The viscosity of a liquid, if homogeneous, does not diminish, to a perceptible degree, the transmission of sounds.

7. Dense liquids with corpuscles, enclosed in strong humid and fleshy membranes, act as reflex mediums, and increase the sounds in the periphery.

Dr. Baccelli remarks that, in applying the ear to the thorax, one hears better in the lower parts, as the transmission of sounds increases in intensity from the superior to the inferior parts of the liquid mass. These observations are of importance with regard to the diagnosis, prognosis, and therapeutics of pleuritic effusions.—("Rivista Clin. di Bologna," Dec., 1875, p. 381.)

Pathology and Morbid Anatomy.

Transformation of Red into White Blood Corpuscles.—In an original treatise on the transformation of red blood corpuscles into white or lymph corpuscles, Dr. G. Bassi, of Bologna, after recording many detailed facts observed by himself, concludes with a corollary of his investigations as follows:—

1. The production of lymph-cells (inflammation-cells) is an inverse process to that taking place during the embryological development of tissue. While the embryonic cells are capable of transformation into any of the elementary tissues of our body, it is also proved that many of the elementary tissues can become transformed into lymph-cells.

2. Of all elementary parts capable of forming lymph-cells, the red blood corpuscles are the foremost.

3. Not all red corpuscles, but more or less of them suffer such a transformation into lymph-cells.

4. A greater part of the red corpuscles which are not thus transformed, change into a granular detritus, and others form large spherical masses, colourable by carmine, and are called cells of Gluge.

5. Other large spherical masses, not colourable by carmine, and containing a certain number of nuclei, are termed giant-cells. These are found in miliary tubercles, and also in all tissues with granulations.

6. The miliary tubercle is the result of circumscribed inflammation, and of the same significance with other purely inflammatory productions which may be observed in infectious diseases, such as typhus, pyæmia, and others.

7. In suppuration we must distinguish between the nervo-vascular disturbance (primary fact) and the anatomical production (secondary fact), as the latter may occur independently of the other (infarction converted into abscess), and resulting simply from a chemical transformation of red blood corpuscles into lymph-cells.

8. Such a transformation may take place within or without the blood-vessels. In the first case, it extends to a larger number of globules than in the latter case.

9. Dr. Bassi has observed these operations in all their stages anatomically within and experimentally without the human organism.

10. The general opinion that the red corpuscles are derived from the colourless is not opposed to the above view of Dr. Bassi. It is proved that connective tissue-cells may be transformed into white blood corpuscles, and also that the latter may become connective cells. If there exists such a reciprocity between these two elementary parts, the same may be admitted to take place between the two kinds of blood corpuscles.

11. Finally, there is not a single pathological observation to oppose the fact of transformation of red corpuscles into lymph-cells; a fact which accords with all modern views, and even with that held more than two thousand years ago and expressed so admirably by Hippocrates[*]:—

"Si caro convulsa fuerit aut contusa, sanguinem ex venis sibi propinquis, trahit, atque hic (sanguinis) putrescit et suppuratur."—("Riv. Clin. di Bologna," vii., 1875, pp. 193-208.)

Structure and Development of Tubercle.—Dr. C. Forlanini, Prosector to the Ospitale Maggiore at Milan (Ann. Univ. di Med. e Chir., 1875), derives from his pathological investigations the following results:—

Each tubercle originally consists of a granular mass of protoplasm with numerous nuclei. This mass increases by the growth of the protoplasm and augmentation of the nuclei. At the same time a retrogressive metamorphosis takes place in the periphery of the mass, leading to the formation of numerous alveoli. The result is the appearance in the periphery of the tubercle of a protoplastic reticulum and in the centre of a mass of protoplasm with nuclei—the giant-cell. In some cases the alveolar formation in the lungs is sparingly developed, and the production of nuclei considerable; in other cases

[*] Hippocrates, "De Morb.," Lib. I, Section 1, Verse 289.

there are large alveoli presenting a distinctly marked net-work with few nuclei (lymphadenum); and again in other cases the protoplasm of the reticulum presents large epithelioid cells. As to the original seat of the primary masses of protoplasm, Forlanini found them in the blood-vessels and also in the lymphatics.—("Med. Neuigk.," Erlangen, Dec., 1875, p. 400.)

Acute Miliary Tuberculosis.—Dr. Luigi Mazzotti made some clinical observations with the object of solving the question of the specific character and origin of acute miliary tubercles, and he remarks that all experimental investigations demonstrate the fact that acute miliary tuberculosis is an infectious disease, but whether specific or not is not yet proved. The doctrine of the origin of tubercle from cheesy or scrophulous matter has many advocates, but ten cases recorded by Mazzotti do not corroborate such a view. His observations show:—Two cases with old cheesy spots; two with preceding suppurative inflammation; one case in which the tubercles became developed after an external abscess; and lastly, one case in which the tubercles formed as a sequela after an inflammation with sero-fibrinous effusion.—("Riv. Clin. di Bologna," Ottobre, Nov., 1875, pp. 307-325.)

Arterial Dicrotism and Polycrotism.—Dr. E. Maragliano, in a pamphlet published at Bologna, deduces from his experimental researches on the abnormal pulse-waves the following conclusions:—

1. Dicrotism and polycrotism are produced by secondary centripetal waves.
2. Such waves originate:—(*a.*) when the onward flow of the blood becomes impeded; (*b.*) when the intravascular pressure is greater; (*c.*) when the energy and frequency of the heart's action become increased.
3. Dicrotism is a local phenomenon, and not general in the whole arterial system.
4. The elasticity of the arterial wall has no influence upon the production of secondary waves.
5. The arterial walls propagate these phenomena, and thus make them perceptible to the touch.
6. The greater the elasticity of the arterial walls, the more easily the secondary waves may be felt and graphically represented.—("Med. Neuigk.," Erlangen, Jan., 1876, p. 30.)

MEDICINE AND SURGERY.

Pulmonary Scrophulosis.—Dr. Alberto Riva, of Bologna, in an elaborate treatise on some slow forms of pulmonary diseases (Contribuzione allo Studio delle Malatie lente del Polmone), especially considers pulmonary scrophulosis and pulmonary phthisis.

For some years the tablets in the Clinical Infirmary at Bologna frequently were marked, under the heading of diagnosis, with the words—"Scrophulosis pulmonum." This diagnostic term Dr. Riva decided fully to examine, and to consider its anatomical basis and clinical meaning. The medical literature on the subject of strumous lung disease may be of some interest, and therefore precedes his own observations. Before Morton, the term "phthisis" was used in a very wide sense, and generally indicated consumption from whatever cause, but particularly dependent on thoracic disease. As to the pathologico-anatomical changes, all was darkness; the pulmonary tubercle, known before Galen, was spoken of in the sense of a more or less round granule. Morton was the first to notice a certain nodosity in the lungs resembling scrophulous affection of lymphatic glands, and therefore termed such a disease—"scrophulous phthisis." Baillie, in 1793, described more fully the tubercle, its original form, and the various phases of its development; and further mentions in the same lung certain deposits of whitish and soft matter, which, at first sight, appeared to be a part of lung-tissue changed into a new substance, which he considered to be scrophulous. Vetter, in 1803, observed that tubercles soften and change into a non-purulent substance, which he called cheesy matter. Later on, all forms of phthisis were divided into two groups: tubercular and non-tubercular phthisis. Laennec, Schoenlein, Jaccoud, Graves, Lebert, Rokitansky, Virchow, Niemeyer, and others gradually threw more light on the subject, all pointing to the transformation of grey tubercle into cheesy matter, and corroborating the acceptance of the two groups of phthisis. Dr. Riva is convinced of the special character maintained by a slow chest affection, and termed pulmonary scrophulosis, of more frequent occurrence than generally admitted, and an affection often observed under the name of tubercular infiltration or of cheesy pneumonia. Careful observations in the Clinical Hospital of Bologna show that pulmonary scrophulosis constitutes about 30 per cent. of all cases of pulmonary phthisis. Pulmonary scrophulosis generally is met with in young persons with previous signs of scrophulous disease, of poor parentage, born and brought up under the most unfavourable hygienic and dietetic conditions, and suffering for some time from a dry cough, rarely accompanied with salivary sputa; this dry cough existing long before and after a feverish state is apparent. The fever, when developed, is much higher every evening, and recedes in the morning even below the normal temperature. The course is generally slow, the result often but not always fatal; hæmorrhages from the lungs are rare and inconsiderable, and in most cases absent; the examination of the chest generally discovers both lungs affected, the supra- and infra-clavicular fossæ are less depressed; on percussion there is much dulness and resistance over the tender parts; on auscultation frequently the bronchial souffle is similar to that heard in simple pneumonia (pneumonia franca), but later on there are numerous more or less large and very sonorous vesicular râles. Dr. Riva illustrates this pathological condition by some clinical cases.—("Riv. Clin. di Bologna," Settembre, 1875, pp. 257-268.)

Pneumonia Suppurativa.—Dr. Angelo Cianciosi reports ("Indipendente," No. 4, 1875) a case of traumatic pneumonia, following a stab in the fifth right intercostal space. At the ninth month the wound was cicatrising, but pus gradually collected in the pleural cavity, and the wound re-opened to give exit to it. The discharge of pus continued, and the patient suffered from cough and dyspnœa, purulent sputa, fever, diarrhœa and progressive emaciation. Dr. Cianciosi ascertained penetration of the lung by the pus, suppurative pneumonia with pyo-pneumothorax. The diarrhœa was subdued by decoction of calumba root, and the cough alleviated by morphia. The treatment further consisted of tonics, and injections into the pleura of a solution of 50 centigrammes of carbolic acid in 200 grammes of infusion of cinchona; oil of turpentine was administered internally and by inhalation. The patient gradually improved, and finally completely recovered.—("Lond. Med. Rec.," October, 1875, p. 587.)

Sudden Death from Acute Pulmonary Œdema.—Dr. Cantilena, of Belluno ("Giornale Veneto di Scienze Mediche," July, 1875), derives the following conclusions from his observations of patients dying suddenly from acute œdema of the lungs:—

1. Sudden death from acute pulmonary œdema may occur in well-nourished robust individuals, with a short neck and large chest. Attacked with severe dyspnœa while at table, or after a full meal, they fall senseless and cyanosed. It may occur in persons of healthy appearance, who manifest only slight disorder of the circulation and respiration from mental exertion or fatiguing locomotion, which are capable of accelerating the circulation; and even without these, the individual may be suddenly attacked. Finally, sudden death may occur in the various forms of lesions of the valves and muscular tissue of the heart, even at the time when the existence of salutary compensations leads one to hope that the danger of an early end has been warded off.

2. In individuals a little advanced in years, with insufficiency of the aortic valves and hypertrophy of the left ventricle, sudden death with symptoms of acute pulmonary œdema may occur when the action of the cardiac muscle has become enfeebled, by which the circulation in the coronary arteries has been rendered difficult, not only because the insufficiency of the semilunar valves impedes the coronary arteries, but because the stasis in the coronary veins tends to produce the same effect, atheroma of the commencement of the aorta; and deformity of the openings of the coronary arteries, especially if the degeneration

extends some way within these vessels, may even produce a rapidly fatal paroxysm of angina pectoris.

3. Attacks of acute pulmonary œdema and syncope, even rapidly fatal, may occur through narrowing of the aortic orifice, when the flow of blood fails in the coronary vessels, and the brain and centre of cardiac innervation remain unprovided with the necessary arterial supply.

4. Individuals who suffer from complicated lesions of the heart, attended with dropsy, catarrh, etc., although revived for a time, remain liable to die suddenly if, in addition to the signs of enfeebled action of the cardiac muscle, the conditions be present which are capable of rendering difficult the circulation in the coronary arteries.—("Lond. Med. Rec.," Oct., 1875, pp. 569-572.)

Pulsating Empyema.—Dr. L. Lorenzutti published the following interesting case of a patient suffering from pulsating empyema:—Ceconi Pietro, aged 27, when first seen, suffered from difficulty in breathing, cough with purulent sputa, feverish state, pain in the left side of the thorax, which became aggravated by any manipulations of his chest required for physical examination; profuse night-sweats. He said he had been ill for a month, and had indulged in Baccho et Venere. His appearance was that of great exhaustion. A careful examination of his chest showed tympanic resonance and amphoric breathing in the left sub-clavicular and supra-spinous regions, corresponding with the apex of the left lung, and dulness, with absence of respiratory murmur, everywhere else except some moist bronchial râles at the lower parts of the back. The heart was displaced to the right, whilst the left cardiac space presented pulsations, but no heartbeats or cardiac sounds. The right lung and all other organs were normal. The withdrawal of pus, by means of Dieulafoy's apparatus and the drainage tube, gave only temporary relief, and the patient died 14 days after admission to the hospital, or 6 weeks from the beginning of his illness. The post-mortem examination revealed empyema with atelectasis of the left lung; the heart in the right thoracic cavity; slight bronchial catarrh in the right lung; pleuritic adhesion; recent pericarditis; and slight atheromata in the aortic valves. There was no aneurism, and the pulsation in the left side could only be explained by the transmission of cardiac movements through the purulent liquid.

Such cases are rare, and three are mentioned by Niemeyer, Jaccoud, and Roncati in their published works on pathology, and two cases are recorded by Traube.—("Ann. Univ. di Med.," Giugno, 1875, pp. 385-391.)

Cases of Pleuritic Effusion treated successfully by Compression of the healthy side of the Thorax.—Encouraged by the favourable results obtained by Concato and Riva of the treatment of pleuritic effusion by compression of the healthy side of the thorax, Dr. Sante Albertazzi repeated such treatment in four cases, and obtained permanent cures in three cases, and relief in the fourth, the latter having been only a short time under observation. In applying this method of treatment Dr. Albertazzi observed the following rules:—

1. At first he assured himself of the recent date of the effusion, and also of the absence of fever, as a sign of completed effusion.

2. The compression of the sound side of the thorax was performed with both hands during 5 to 12 minutes twice a day.

The patients treated were: a woman, aged 39, cured in 13 days; another woman, aged 50, cured in 36 days; and a man, aged 40, cured in 19 days; a young man, under treatment 6 days, relieved with partial absorption of the effusion.—("Riv. Clin. di Bologna" Giugno, 1876, pp. 161, 162.)

Thoracentesis.—Dr. Sereno ("Giornali l'Indipendente," Nos. 4 and 5, 1876) relates four cases of thoracentesis performed by him for pleuritic effusions, and remarks that this operation ought always to prove safe and successful, if it ceased to be generally performed as a last attempt after other methods of treatment have failed, and the whole system is weakened by previous action on the skin, bowels and kidneys, whereby also much precious time is wasted.—("Ann. Univ. de Med. e Chir.," Milano, Marzo, 1876, p. 210.)

A Pin removed from the Larynx.—Dr. Massei ("La Clinica," 1875, No. 7) communicates a case of a young man, aged 20, who swallowed a pin held by him between the teeth, and immediately felt much pain in the throat and distress during deglutition; breathing and voice were free. An hour after the accident Dr. Massei saw the patient, and on examination with the laryngoscope detected the pin sticking laterally in the mucous membrane, near the base of the right arytenoid cartilage, in a vertical position. After some fruitless efforts at extraction the pin changed its position to a horizontal one, and was then easily removed with a curved forceps.—("Ann. Univ. di Med. e Chir.," Milano, Ottobre, 1875, p. 101.)

Extirpation of the Larynx.—Prof. Billroth, of Vienna, having been the first safely to remove the larynx, Prof. Bottini, of Novara, relates ("Gaz. Med. di Torino," No. 10) another case in which the operation proved a success. The patient was a young man, suffering from great distress in breathing, for which laryngotomy and also the galvanic cautery had been tried, without giving him relief. The laryngoscope detected a greyish-red tumour filling the whole laryngeal canal. Prof. Bottini extirpated the whole larynx in an hour and a-half, with very little loss of blood. The patient was fed by aid of the pharyngeal sound, with wine and beef-tea. During the first few days he suffered from a slight feverish state, which abated on the fifth day. On the eighth day erysipelas appeared near the wound, and soon spread over the neck, face and head. Large doses of quinine, and the local application of a solution of nitrate of silver soon subdued this complication. The patient then made a speedy recovery, the wound healed, and deglutition, comfortable respiration and undisturbed sleep followed, and he now enjoys general good health.—("Allg. Wiener Med. Zeit.," June, 1875, p. 215.)

Recovery after Complete Division of the Trachea.—Dr. Luigi Stagi communicates ("Lo Sperimentale") a case of cut-throat, caused by a razor, in a man, aged 24. The wound was transverse, between the first two tracheal rings, the edges nearly an inch apart. No important vessel appeared to be injured. The patient suffered from aphonia, difficult and noisy breathing. Blood mixed with air was expelled through the wound, with violent attacks of coughing. The patient was turned on his face to facilitate the escape of blood, and cold application soon stopped all hæmorrhage. The following morning breathing through the wound became free and easy, and there appeared no more blood. The position was then changed to the back, the head being bent towards the front of the chest, and thus kept for eighteen days. The trachea was perfectly united on the twelfth day, and the wound healed about a month after the injury. His voice soon returned, but remained hoarse.—("Lond. Med. Rec.," August, 1875, p. 491.)

Primary Laryngeal Abscess.—Dr. Salvatore Salamone-Marino ("Riv. Clin. di Bologna," 2 Ser. vi., Genn., 1876, pp. 14-17) in a paper read before the Scientific Congress of Palermo in Sept., 1875, communicates the following observation of a primary laryngeal abscess, being a case of interest owing to its rare occurrence. One morning Dr. Salvatore was suddenly called to visit a patient who was said to be dying from an obscure throat affection. The history of this patient was one free from previous illness, except an intermittent fever of short duration. He never complained of his throat till lately, when, after a hard day's work in the field, he returned home in full perspiration, and, caught by a shower, got wet through. He soon felt difficulty in swallowing, rigor and dry cough. On the sixth day, the fever became very high, he lost his voice, and felt difficulty in breathing and pain in swallowing, caused as he thought by some obstruction in the larynx; in the night he suddenly felt threatening suffocation, stretched his arms in despair, and made strenuous inspiratory efforts to get some air into his chest. Dr. Salvatore found the patient sitting on the edge of his bed with his arms outstretched towards the open window, his lips cyanotic, the eyes, mouth, and nostrils wide open, the jugular veins full, very difficult breathing, with prolonged whistling inspiration, all symptoms of approaching asphyxia by some obstacle in the air passages; the pulse feeble and intermittent 124, complete aphonia. Externally, no swelling could be detected in the neck, but there was tenderness on touching the space between the hyoid and thyroid bones. On inspection, the pharynx presented no abnormal state, except a slight redness. The base of the tongue was elevated and very resistant and tender to touch. On pushing the finger further to the border of the epiglottis, which appeared roundish and thickened, two tumours of the size of hazel-nuts could be felt proceeding on either side from the ary-epiglottic folds; they nearly met in the middle of the laryngeal aperture, and almost completely obstructed the entrance into the larynx. The tumours were of pasty consistence, and during the digital examination there escaped from the right tumour a small quantity of pus into the pharynx and on the finger when it was withdrawn. Some cough efforts followed and brought up a few grammes of creamy pus of a yellowish green colour. The breathing became easier, the pulse recovered, became 104 and regular; temperature, 39·8° Cent. Aphonia remained unchanged. In the night, the second tumour opened, and the patient discharged its purulent contents into a spittoon; temperature, 38·4° Cent.; pulse, 96; respiration, 22. Next morning his voice returned, he slept part of the night, his breathing was quite free and normal, he felt hungry, and found no difficulty in swallowing, temperature 37·6° Cent.; pulse, 78; respiration, 20. There were no abnormal conditions to be detected in the larynx, and three days later the patient resumed his daily occupations.

Dr. Salvatore remarks that there are very few cases recorded of primary abscess in the larynx, and mentions one case observed by Morgagni, in 1704, in a lady who was believed to suffer from pulmonary affection, but the autopsy detected healthy thoracic organs and a collection of pus from a recent abscess in the larynx. The laryngoscopists of our time — Lewin, Tobold, Störk, and Türk— have met frequently with laryngeal abscesses, but do not state that such were primary abscesses. Dr. Gottstein mentions ("Virchow's Jahresbericht," 1866) a case of primary laryngeal abscess in a man diagnosed with the aid of the laryngoscope and cured by incision. Dr. Grey observed one case in an ox and one in a cow. Dr. Scheff reports ("Virchow's Jahresbericht," 1872), a case of primary laryngeal abscess in a lady, aged 36, speedily recognised laryngoscopically and cured by incision. Dr. Salvatore further states that the above-mentioned cases are all he could find mentioned in medical literature; and he therefore concludes such primary laryngeal abscesses to be extremely rare, and when early detected, to be followed by a certain and rapid cure; whilst other non-primary layrngeal abscesses are generally very grave and dangerous throat affections.—("Riv. Clin. di Bologna," Jan., 1876, pp. 14-17.)

MATERIA MEDICA AND THERAPEUTICS.

The Action of Alcohol and Aldehyde.—Drs. Felice Lussana and Pietro Albertoni, of Padua ("Giornale Veneto delle Scienze Mediche," Marzo, 1875), regard as exaggerated the opinions of those who consider that alcohol produces much change in the plasma or in the corpuscles of the blood. They consider, from their experiments, that alcohol gives rise to dilatation of the capillaries, and to increase in the energy of the cardiac contractions. They also are of opinion that, in a healthy man, alcohol, in a physiological dose, does not produce a constant modification of the heat-making process, although in animals (dogs, guinea-pigs and birds) alcohol always lowers the temperature. They found that alcohol, when properly diluted, is readily absorbed by the air-passages, but is exhaled by the lungs in very minute quantities.

With regard to the action of aldehyde, the same authors conclude from their experimental researches, as follows:—

Aldehyde agrees in its elementary properties with alcohol. It coagulates albuminous substances, and is a solvent of all such substances as are soluble in alcohol. It possesses powerful antiputrescent properties. Its physiological action on animals is very powerful; from 3 to 5 grammes, diluted in water and injected into the veins of a dog, almost immediately arrest the respiration, and produce a condition of coma. The heart's action is only slightly weakened, but muscles are paralysed, and sensation and reflex excitability are destroyed temporarily. The animals, however, usually recover in a short time. In small doses aldehyde produces intoxication similar to that of alcohol, but sensation is completely lost. When given by the stomach it produces intense irritation of that organ, and gives rise to gangrene of the mucous coat, owing to its caustic properties. Large quantities of it can be inhaled through the lungs. Small quantities of it accelerate the respiration, but large ones arrest it completely, but scarcely affect the cardiac contractions. During the stage of asphyxia, irritation of the pneumogastric nerves exerts no influence on the heart; but when the breathing recommences, these nerves recover their irritability. Aldehyde diminishes the temperature of the body in proportion to the dose given. The vessels of the brain, observed through an opening made in the skull, are dilated at the beginning of inhalation of aldehyde, but they contract when the animal becomes narcotised. The property which aldehyde possesses of arresting the respiration, and its irritating action, will probably prevent its employment as an anæsthetic in surgical operations.—("Monthly Report on the Progress of Therapeutics," No. xvii., February, 1876.)

Treatment of Diphtheria.

I. From the lately published Lectures on Croup and Diphtheria, by Dr. Bizzozero, of Turin ("Crup e dipterite," Lezione. Torino, 1875), the following views may be recorded:—

It is generally considered that croup and diphtheria are different manifestations of one and the same disease, the first being a laryngo-tracheal, the second a pharyngo-buccal exudation. Croup is an inflammation with pseudo-membranous products, and diphtheria seems within the tissues, and is accompanied with the production of young cells, which rapidly degenerate, and consists of a turbid tumefaction of the cells proper to the tissue with mortification. Dr. Bizzozero distinguishes the two affections as distinct from one another. Croup is a local inflammatory affection; diphtheria is an infectious disease, with particular characteristics. The treatment of diphtheria ought to be prophylactic by avoiding contagion; cauterisations, except in early stages are injurious, as they favour the spread of inflammation, and cause fatal œdema glottidis. Cold and astringent applications are of use in the beginning of the disease, but not afterwards. Local depletion leads to mortification. Inhalation of hot solutions of disinfectants may be useful. The cavities of the mouth, pharynx, and nose ought frequently to be cleansed by gargles and injections of solutions, containing carbolic acid and permanganate of potash. Tracheotomy is of less use in diphtheria than in croup. The general treatment should be that of all infectious diseases.—("Rev. Clin. di Bologna." Luglio, 1875, pp. 213-216.)

II. Professor Porta-Giusleo communicates ("Il Raccoglitoro," 1875, 17), the successes resulting from the treatment of diphtheria by topical applications of oxalic acid and the internal administration of sulpho-carbolate of quinine. In some severe cases of diphtheria, with gangrenous tonsils, and in which all ordinary methods of treatment failed, the local application of oxalic acid solution effected the separation of the plaques, their ultimate ejection under violent coughing, and complete recovery. During an epidemic outbreak of diphtheria in 1875, Professor Porta-Giusleo and other medical men obtained the most satisfactory results with this treatment. For topical applications a solution of 15 per cent. of oxalic acid in glycerine was used, and for internal use the sulpho-carbolate of quinine. The recoveries were quick, safe, and numerous, even in desperate cases. Professor Porta-Giusleo further states that he never met with a fatal case; and, therefore, strongly recommends the general adoption of his method of treatment in all cases of diphtheria.—("Med. Neuigk.," Sept., 1875, p. 311.)

III. Dr. Carlo Bareggi, in analysing the therapeutics of diphtheria, made careful observations of the natural course of this affection, which, he says, depends on the force of the morbid principle and on the predisposition of the individual. He deduces from his observations the following conclusions:—

1. The medical man cannot follow exclusively one method of treatment, as there has not yet been discovered any remedy capable of destroying the diphtheritic process, as quinine does in case of miasmatic fever.

2. The treatment must vary according to the individual case; (*a.*) one part of the treatment ought only to differ as to the degree (nutritious diet, tonics, cleanliness, disinfections); (*b.*) another part of the treatment ought to vary according to constitution and to the state of the excretory functions.

3. The most efficacious treatment should be chiefly prophylactic, and should also be directed to the application of derivatives to the mouth and pharynx. (Bareggi records some good results obtained by local applications of salicylic acid in powder to the mucous membranes of the mouth and pharynx.)

4. Various curative methods may be adopted with success with the view of relieving the most important symptoms, which present themselves in the majority of cases of diphtheria.—("Ann. Univ. di Med. e Chir.," Settembre, 1875, pp. 421-443.)

IV. Dr. de Sabbata ("Giornale Veneto delle Scienze Mediche," Decembre, 1875) reports forty cases of diphtheria successfully treated by local application and gargling, with an acid solution of sulphate of iron. The mortality was 12·5 per cent. Formula for gargle:—℞. Ferri sulphatis puri, 5 grammes; acidi sulphurici diluti, ♏ xxv.; aquæ, 100 grammes; misce. For local application, 70 to 80 grammes of water instead of 100.—("Lond. Med. Rec.," March, 1876, p. 120.)

MISCELLANEOUS.

Artificial Respiration.—Prof. Pacini observed in the post-mortem room that, whenever a fresh corpse is carried from one place to another, the chest expands as in inspiration, and when the body is put flat on a table the chest contracts as in expiration. A close examination of this phenomenon showed that whilst one of the porters took hold of the legs, the other in lifting the body, passed his hands from behind between the axillæ and arms of the body, thus causing the chest to expand as in inspiration. The contraction of the chest, as in expiration, when the body was put flat on the table needs no further explanation.

Prof. Pacini adopted this new method of inducing artificial respiration, and, in nine cases of apparent death, succeeded in saving life. Pacini considers this method more effectual than that of Silvester.—("Sov. Med. War.," No. 13, 1876, p. 204.)

FRANCE.

(*Report by* H. DE FOUMARTIN, M.D.)

ANATOMY AND PHYSIOLOGY.

Movements of the Heart and Arteries.—M. Bouillaud, differing from M. Marey's theory, says that the pulse, in its normal condition, is not monocrotic, but dicrotic, and that the normal sphygmographic tracing of an arterial revolution shows a line consisting of four elements, and composed of two parts: the one, ascending vertical and almost perpendicular, corresponds with the first beat of the artery (ventricular systole and arterial diastole), *i.e.*, the first element of an arterial revolution; the other part, descending, consists of three distinct elements, which answer to the three other elements of the arterial revolution. The first of these is represented by an angle, more or less open, which is seen at the top of the ascending line, and which corresponds with the first, or shorter, pause of the artery, *i.e.*, the second element of its revolution. The second is a depression, or sinus, indicating the arterial systole, *i.e.*, the third element of the revolution of the vessel. Lastly, the third element of the descending line is an oblique line, registering the longer pause, *i.e.*, the fourth and last element of the normal revolution. As might be expected, this line representing the longer pause is more developed than the one corresponding with the shorter pause. Therefore, a monocrotic pulse, registered by a sphygmographic tracing showing one beat and one pause, should be considered abnormal.—("Comptes-Rendus de l'Acad. des Sc.," Oct. 4, 1875.)

M. Lépine read to the Biological Society (July 24, 1875) his answer to this question: "Does stimulation of the anterior part of the brain act upon the heart through the medium of the vagus nerve of the corresponding, or of that of the opposite, side?" On a dog which was curarised, and of which the left vagus was cut and the brain uncovered, M. Lépine directed alternately through each cerebral hemisphere a constant electric current. He thus ascertained that stimulation of the right hemisphere did not produce any effect, whilst that of the left hemisphere diminished the frequency and strength of the pulsations.—("Union Med.," No. 93, 1875.)

Alternate Stimulation of the Vagi (by J. Tarchanoff and G. Puelma).

—If one of the vagi is stimulated during a sufficient time by a strong electric current, so that its action on the heart is thoroughly exhausted, which will be indicated by the return of the beats, and then, if the other vagus is stimulated at once, not only the heart will not be arrested, but its activity will not even be interfered with, although, of course, the nerve lastly excited is not exhausted at all. On the contrary, the heart will be at once arrested if the second vagus is stimulated one or two minutes after the stimulation of the first nerve has been stopped.

The preceding experiment shows clearly that each vagus acts upon the whole of the moderator apparatus which lies in the cardiac walls. It proves also that, when this apparatus has just been exhausted by the stimulation of either vagus, its activity cannot be roused by stimulating the other nerve. Again, it demonstrates that the state of exhaustion of the cardiac moderator apparatus yields very rapidly under the influence of rest.—("Arch. de Physiol.," 1875.)

Vaso-motor Nerves of the Heart (Vulpian).—The vagi do not arrest the heart by constricting the blood-vessels of the myocardium, as was suggested by M. Brown-Séquard. In fact, the vaso-motor nerves of the heart seem to be independent of the vagi, because faradisation of these latter nerves does not produce constriction of the blood-vessels or decoloration of the myocardium. Again, electrisation of the vagi arrests the cardiac contractions in frogs, although, in these animals, the myocardium is almost deprived of vessels. Lastly, stimulation of the vagi or of the ganglionic system, in dogs, whether curarised or not, does not appear to interfere with the vascular condition of the cardiac muscle.—("Leçons sur l'Appareil vaso-moteur," Tom. II., 1875.)

Action of Biliary Salts on the Circulation (by MM. V. Feltz and E. Ritter).—Biliary salts having a special paralyzing action on muscular contractility, their presence in the blood, by interfering with muscular action, produces diminution of temperature of the number of cardiac pulsations, of arterial tension, and of the respiratory movements. Cholesterine and the colouring matters of the bile do not play any part in the production of the functional disturbance, which is entirely due to the alteration of the blood by the biliary salts. It is through the medium of the blood that these salts act upon the whole muscular system, and especially on the heart. The constitution of the blood itself acts mechanically, for we can considerably diminish the rapidity of the current through capillary tubes by adding to normal blood very small quantities of biliary salts. The toxic influence of these, evidently acts on the blood-corpuscles, since blood-serum saturated with biliary salts does not run more slowly through capillary tubes than normal serum. Microscopical examination confirms this assertion.—("Journ. de l'Anat. et de la Physiol.," 1876.)

Coagulation of the Blood.—MM. E. Mathieu and V. Urbain (Aug. 23, 1875) maintained their previous assertion, viz., that carbonic acid gas is the agent of the spontaneous coagulation of the blood, and that, during life, the fibrine dissolved in the plasma does not coagulate, because the carbonic acid gas, as well as the oxygen, is combined with the blood-corpuscles. M. F. Glénard (July 12, 1875) had urged in objection to these views that, if from a living animal (Solipedes, Ruminantia), you take an arterial or venous vessel filled with blood, and if you keep it exposed to the air, the blood will not coagulate, whatever may be the dimensions of the vessel. After a length of time, varying with the volume of the vessel and the quantity of blood, the whole, *i.e.*, both the blood and the vessel, will dry, forming a horn-like mass. Then if you treat by water this dried mass, the blood will be dissolved, and its solution can, even after filtering, undergo spontaneous coagulation. The more concentrated the blood, the more delayed its spontaneous coagulation. In the above experiment, if you prevent evaporation, the blood will coagulate spontaneously in the vessel, but its coagulation will then require from twelve to fifteen hours to take place, instead of being produced in a time of from five to ten minutes, as in the case of blood-letting. In this latter case coagulation is due to the contact of the blood with the receiver. Now, the only experiment in which the blood drawn from a living body is constantly seen remaining fluid, during twelve hours at least, and that without any artificial interference of physical agents, like cold, or of chemical ones, like alkaline solutions, consists in preventing all contact between the blood and foreign bodies. The more the physical structure of the foreign bodies is like the physical structure of the blood-vessels, the less coagulating power they have.

With the exception of the contact with the foreign bodies, none of the new conditions under which the blood is placed, when drawn from a living body, can, by itself or by its association with the others, determine coagulation; coagulation, as well as the fluid state of the blood, being, at least in the normal conditions, independent of all excess or deficiency of any gaseous chemical reagent. The blood, when kept in a blood-vessel which has been detached from an animal, can be impregnated with carbonic acid gas, oxygen, or even sulphuretted hydrogen, without coagulating or losing its power of coagulation, which it will afterwards show, if it is brought into contact with a foreign body. The blood kept in a blood-vessel remains vivifying as long as it remains liquid, so that blood drawn from a bull can, seven hours after being extracted, be successfully used for transfusion into a dog which has been bled to death. The blood remains living as long as it holds its power of spontaneous coagulation. Coagulation is the death of the blood. The coagulating power is impeded, but not destroyed, by concentrating the blood, in the same manner as the manifestations of life are suspended by dessication in Tardigrades and Rotifers. In both cases the addition of water will restore the physico-chemical conditions which are necessary in the one case to the manifestation of life, and in the other to spontaneous coagulation.

MM. E. Mathieu and V. Urbain (Sept. 27, 1875) urged in objection to M. Glénard's conclusions, that the wall of the blood-vessel has no influence whatever upon the phenomena of coagulation. In fact, the blood coagulates after a ligature has been placed on a blood-vessel in a living subject. Again, the blood does not coagulate when it is received into an intestinal membrane, provided this be kept in motion. MM. Mathieu and Urbain would persist in maintaining that, according to their own experiments:—*a.* Coagulation is produced when the exosmosis of carbonic acid gas is prevented by placing the segments filled with blood in oil or in carbonic acid gas; *b.* A current of carbonic acid gas, directed through fluid blood, determines almost immediate formation of fibrinous clots, little coloured, and like those which are obtained after churning the blood; whilst a current of air, of hydrogen, or of carbonic oxide leaves it fluid.

M. Oré (Nov. 8, 1875) ascertained by his experiments, that:—*a.* Although acids, when placed in contact with the blood in a vessel open and exposed to the air, coagulate albumen, they fail to produce that effect when they are directly injected into the circulation. This conclusion applies as well to alcohol. *b.* Most substances, insoluble in water, become soluble in the presence of acids or alcohol, and can, when treated by alcohol or by an acid, be injected without producing any phenomenon of coagulation. M. Glénard (Nov. 15, 1875) again denied that carbonic acid gas plays any part in the coagulation of the blood, which he succeeded in keeping perfectly fluid, although it was exposed to an atmosphere of carbonic acid gas.

M. A. Gautier (Nov. 15, 1875) expressed his doubt about MM. Mathieu and Urbain's theory. M. Gautier, in fact, deprived the plasma of the blood of carbonic acid gas, and then he treated it by sodic chloride, which salt prevents its coagulation. Thus previously treated, the plasma was placed in the vacuum and dried. Then it was powdered, dried again, and then treated by pure water. Its power of coagulation remained entire, whilst a current of carbonic acid gas, directed through the plasma treated by sodic chloride, failed to produce coagulation; thus showing that the part of carbonic acid gas in the production of this phenomenon is absolutely nil.

MM. Mathieu and Urbain (Feb. 14, 1876) replied that, in M. Gautier's experiments: *a.* The dessication in the vaccuum cannot deprive the plasma of the carbonic acid gas which it contains. *b.* Again, coagulation cannot be produced at the temperature of + 8° Cent., which was that of the plasma on which M. Gautier made his experiments, and which contained a percentage of five parts of sodic chloride. *c*. Lastly, a solution of globuline, or even lime water, if a sufficient proportion of sodic chloride be added to it, will give no reaction with carbonic acid gas.—("Comptes-Rendus de l'Acad. des Sc.")

Circulation in Vertebrata.—M. E. Blanchard ("Rev. Scientifique") and M. A. Sabatier ("Etudes sur le cœur et la circulat. centrale dans la Série des Vertébrés") state that, in reptiles and batrachians, there is no mixture between the arterial and the venous blood. In batrachians, both kinds of blood are propelled by the auricles into the spongy tissue of the heart. They remain distinct during the diastole; and during the systole, through the medium of the muscular trabeculæ and areolæ of the ventricular walls, they are propelled in different directions, viz., the bright blood into the aortæ, and the dark blood into the pulmonary artery. In reptiles, at the beginning of the systole, the pulmonary vestibulum seems to be shut, thus enclosing the unmixed venous blood, whilst the orifice of the left aorta is flattened and shut almost immediately after receiving a small quantity of mixed blood. Again, the right aorta, admitting also into its cavity a little quantity of mixed blood, subsequently receives only bright blood, a part of which is sent off into the left aorta through the inter-aortic fissure. In emydosaurians or crocodiles, this fissure closes during the ventricular systole, and remains patulous only during the diastole. The orifice of the left aorta is flattened and shut on the beginning of the systole, so that but very little venous blood can pass through it, whilst the right aorta receives only arterial blood. Contrary to M. Brücke's assertion, viz., that pulmonary circulation is not interrupted when respiration is arrested, M. Sabatier's experiments showed him that, in the lower animals, such as reptiles and batrachians, pulmonary circulation is very much impeded when the reoxygenation of the blood is interfered with. In the higher animals venous tension is increased when respiration is arrested, whilst arterial tension is diminished during its interruption, and subsequently rises gradually. Therefore, the disturbance of circulation in asphyxia is due to deficient reoxygenation of the blood.

On a Manner of Arresting the Heart in Frogs (by J. Tarchanoff). —Incise the abdominal wall of a frog and pull out an intestinal loop with its adherent omentum. Maintain the parts in this position during a few hours, so that intestinal inflammation may develop. Then, expose the heart, by making an aperture in the præcordial region, in order to be able to observe accurately the movements of the organ. Now, if you touch slightly with your finger the inflamed intestine, you will see that the heart will be stopped at once, and that it will remain so during from a few seconds to half a minute, after which it will again go on beating, although at first the contractions will be less frequent than usual. You will not produce the arrest of the heart if you experiment as soon as the intestine is exposed, *i.e.*, before it becomes inflamed. The exaggerated irritation of the sympathetic twigs in the inflamed tissue is, therefore, the cause of the above result, which you will also fail to obtain if you previously cut the vagi or put the animal under the influence of curara.—("Archives de Physiol.," 1875.)

Vaso-Motor Nerves of the Lung (Vulpian).—Although faradisation of the vago-sympathetic nerves in dogs produces marked anæmia of the laryngeal mucous membrane, no vaso-motor disturbance is rendered visible in the lungs, either by cutting or by stimulating the vagi. Therefore the pulmonary lesions which follow the section of these nerves do not depend upon any vaso-motor influence, as asserted by Schiff. These lesions are attributable to irritation produced by alimentary liquids, which enter the lung through the respiratory tract, the sensibility of which is paralysed by the section of the vagi, so that neither does the glottis close to oppose the passage of alimentary particles, nor the trachea and bronchi become irritated so as to produce expulsive cough (Traube). But such lesions must also be partly assigned to trophic paralysis, which follows the section of the vagi, and which renders the tissues more ready to undergo morbid changes, thus favouring the irritative action of foreign bodies. —("Leçons sur l'appareil vaso-moteur," Tom. II., 1875.)

Pulmonary Capacity.—M. Jolyet concludes from his researches on the capacity of the air-tract in various animals, that the greater the weight of the animal the smaller is the relative pulmonary capacity.— ("Union Méd.," No. 78, 1875.)

M. A. Sanson found that:—*a.* In the same time and for the same weight of the body, horses exhale more carbonic acid gas than bulls. *b.* In the same order of animals, the species, and in the same species, the varieties, which present a lesser weight of the body, possess, proportionately to their weight, more active respiration, more developed respiratory surface, more voluminous lungs, and more numerous pulmonary alveoli in the same volume of lung. In bulls, according to the experiments of Beaudement and others, the weight of the lung decreases proportionately to that of the body, and the thoracic capacity diminishes in proportion as the species or varieties become more precocious, or as ossification is more rapidly completed. Again, in the species, or varieties, the pulmonary surface of which is the least developed, the quantity of carbonic acid gas exhaled in a given time is the least, proportionately to the weight of the body. *c.* Respiration is more active in males than in females, and males, proportionately to the weight of the body, possess a larger pulmonary capacity. *d.* Young animals eliminate proportionately more carbonic acid gas than old ones, and the number of thoracic movements, in a given time, decreases in proportion as the number of years increases. Therefore, the gaseous compound mixtures contained in the lung-cells is more frequently renewed in young than in old subjects. *e.* Diet, whether by its quantity or quality, provided it be sufficient to keep up the healthy state and normal conditions of the individual, does not interfere at all with the respiratory function, although the contrary has been asserted. *f.* Muscular action, though it increases the production of carbonic acid gas and its proportion in the blood, has no influence on respiration, after cessation of the muscular exertion. Thus, animals used for working purposes do not, when at rest, eliminate more carbonic acid gas, in a given time, than those belonging to the same species, which have never been worked. *g.* Atmospheric temperature plays a very definite part in the production of carbonic acid gas. Thus, the exhaled quantity of this is in direct proportion to the elevation of temperature; and, notwithstanding assertions to the contrary, the lower the temperature, the less carbonic acid gas is eliminated by respiration. *h.* Barometric pressure interferes in a reverse way to that of temperature. Carbonic elimination decreases as pressure increases, and rises as it falls. *i.* Hence the influence of temperature being antagonistic to that of pressure, the effect of either can be compensated by that of the other, so that, in suitable proportions, a high temperature with a high pressure corresponds with a low temperature and low pressure; and the largest amount of carbonic acid gas produced by the lungs would result from the combined effects of high temperature and low pressure.—("Comptes-Rendus de l'Acad. des Sc.," April 24, 1876.)

Carbonic Acid Gas in the Atmosphere.—The experiments made by M. Raoult, on rabbits, prove that the presence of an abnormal quantity of carbonic acid gas in the atmosphere diminishes the amount of carbonic acid gas produced, and of oxygen consumed, by respiration. The presence of carbonic acid gas in the air is consequently an impediment to the function of hæmatosis. If an animal breathes in air mixed with carbonic acid gas, the respiratory movements will be increased in their extent, and the volume of atmospheric gases inspired during a given time will be found to exceed the normal average, which partly compensates for the noxious effects of the carbonic acid gas.—("Comptes-Rendus de l'Acad. des Sc.," May 8, 1876.)

Compressed Air Insufflated into the Lungs (by M. G. Ducrocq).—This is not a study of the effects of increased atmospheric pressure, but of those which are produced by *insufflation* of compressed air into the lungs. They are as follows:—*a.* Expiration is very much impeded because its principal agent—*i.e.*, the elasticity of the lung—is annihilated. Thus, the animals on which experiments were made presented short inspiration, followed by long and laboured expiration, which was only effected by the combined action of all the respiratory muscles. *b*. Aortic tension, and the supply of blood to the aortic circulation, are diminished. *c*. The afflux of venous blood into the right heart is considerably increased. The pulmonary circulation is impeded, and the right heart fails to overcome the pressure which exists in the lung capillaries; the blood, therefore, accumulates in the right heart and thoracic veins, and the jugular veins are distended and turgid. *d*. The pulse varies in frequency: thus, it is much accelerated when the pressure of the air insufflated into the lungs is not too great; but its frequency may be diminished if, on the contrary, the increase of pressure is greater than 5 centimetres of mercury.—Compressed air may be insufflated into the lungs in cases of nervous asthma, provided the pressure is not too great, and the time during which this insufflation is made not longer than the average duration of the normal inspiration. In cardiac cases, the respiration of compressed air is more noxious than beneficial.—("Lyon Méd.," Sept. 26, 1875.)

Physiological Effects of Increased Atmospheric Pressure.—Dr. Pravaz experimented on himself by sojourning in an apparatus which he had constructed *ad hoc*. During the first hour the production of heat goes on increasing, but afterwards it decreases constantly, while the gradual increase of arterial tension gives with the sphygmograph a smaller and smaller pulse. This result might easily be expected; in effect, the increase of arterial tension tends to diminish the frequency of the cardiac beats, whilst the venous and capillary circulation is favoured, because the suction power of the thorax is greater in a denser atmosphere. It is well known, however, that the effect of a rarefied atmosphere is to fill up the venous vessels with blood. The number of respirations is diminished absolutely—but not proportionately, like that of the pulsations—to the increase of pressure. On the contrary, the former would rather tend to increase when the latter diminishes.

The reasons given by Dr. Pravaz to explain the diminution in the number of respirations are:—*a*. The more energetic oxidation of the red corpuscles. *b*. The greater extent of each inspiratory movement, in consequence of which the respiratory capacity is increased. According to M. Pravaz, compression can interfere with the respiratory function in one way only, viz., by requiring more muscular effort during inspiration. The individual measure of the vigour of the inspiratory muscles appears, accordingly, to be in direct proportion to the diminution in the frequency of the inspirations; these muscles, being once tired, the inspiratory movements would both increase in frequency and diminish in extent.

Again, the excretion of urea, exhalation of carbonic acid gas, and production of heat, are, at first, absolutely increased altogether; but, when the sojourn in compressed air is prolonged, they are diminished, relatively at first, and afterwards absolutely. However, the activity of organic combustions remains in excess of the normal rate, provided the increase of pressure does not reach one atmosphere.—("Archives Gén. de Méd.," May, 1876.)

M. Pravaz's conclusions seem to be partly disaffirmed by M. Ducrocq, who adopts the views of M. P. Bert. But, as before said, M. Ducrocq introduced air into the trachea of animals, whilst M. Pravaz submitted himself to prolonged sojourn in a special apparatus.—("Thése de Paris," 1875.)

Air Introduced into the Veins.—M. Couty found from experiments on animals, that air introduced into the veins does not kill by obstructing the cerebral arteries, as Bichat thought, or by obstructing the pulmonary capillaries, as is still the general opinion; but that death depends upon one disturbance only, *i.e.*, the more or less rapid obstruction of the circulation. This single disturbance is the cause of all the subsequent general symptoms. M. Vulpian's attention was directed to this by the fact that venous blood-letting suspends the accidents produced by the introduction of air into the veins. M. Couty performed numerous and varied experiments on dogs, either curarised or not, and found that the observed phenomena can be distributed between four periods, according to the order in which they are successively produced:—*a.* First period. Arterial tension falls a few centimetres, but not enough to cause much disturbance in the performance of the great vital functions. *b.* Second period. Arterial tension is from 4 to 8 centimetres below par; signs of cerebral anæmia and accelerated respiration supervene, and the animal falls senseless. *c.* Third period. Arterial tension becomes nearly *nil*; symptoms of medullo-bulbar anæmia are present, *i.e.*, convulsions in the striated muscles, involuntary evacuations, and slow and apoplectic respiration. *d.* Fourth period. Circulation is completely arrested, the nervous centres die, respiration ceases, and in both the right and the left heart the contractions, which during the three first periods remain accelerated and energetic, soon disappear. As might be expected, the intensity of the accidents and the fall of tension vary with the amount of air, so that the general symptoms may be *nil*, or may be limited to those of the second or of the third period. Now, the arrest of circulation is produced merely by mechanical distension of the right cardiac cavities. The air is not carried to the lung in proportion as it enters the right ventricle, but accumulates in this under the convex wall, which is the less dependent part, and which it distends more or less abruptly according to the rapidity of its introduction. Therefore, contrary to the old opinion, progressive distension of the right ventricle and death should occur, although the air is slowly introduced provided it is so in sufficient quantity. Of course, the ventricular distension causes death by asystole, by rendering incomplete the contractions of the right heart, and especially by causing tricuspid insufficiency. The right cavities acquire a double or treble volume; venous pulse is much marked in distant vessels [jugular, crural]; and this backward flow propels air into the whole venous system, even into the cerebral sinuses; whilst the heart, contracting on elastic gases, compresses them instead of propelling them, so that the pulmonary circulation is gradually diminished and finally annihilated. The treatment proposed by the author consists in phlebotomy, in order to diminish the asystole, and, in inhalations of oxygen, to favour the solution in the blood of the nitrogen which accumulates in the right ventricle.—("Archives de Physiol.," 1876.)

Action of the Pillars of the Diaphragm.—M. G. Carlet concludes, from his experiments on rabbits, that:—*a.* The pillars and arch of the diaphragm contract simultaneously; *b.* The pillars are direct agents of inspiration.—("Comptes-Rendus de l'Acad. des Sc.," July 19, 1875.)

Respiration in Crustacea.—M. Jobert ascertained that in several species of brachyures, particularly the uca una, the bronchial apparatus can function exactly like a lung. He, therefore, proposed to give to these various kinds of crustacea the name of "branchio-pulmonary."—("Comptes-Rendus de l'Acad. des Sc.," Dec. 13, 1875.)

ETIOLOGY.

Azotation.—M. Charbonnier, of Brussels ("Maladies et Facultés diverses des Mystiques") has demonstrated that all the phenomena, such as ecstasies, hallucinations, stigmata, etc., termed supernatural, and presented by mystic people, are morbid manifestations due to the nitrogenous cachexia. This pathological condition, or "Azotation," is the result of prolonged deficiency in the supply of food, and consists in the accumulation of nitrogen in the tissues. Mystic people acquire gradually the habit of taking scarcely any nutriment. Thus, respiration making compensation for the deficiency of digestive nutrition, the tissues become impregnated with nitrogen from the atmosphere. At the same time this nitrogen counterbalances the expenditure of animal heat, being an endothermic body, *i.e.*, one which, in combining, does not cause any quantity of heat to be evolved, but renders it latent, storing it up in the tissues, whilst these become deprived of their own carbon, giving it off to be burnt away, so as to afford what is wanted for the production of carbonic acid gas, the combustion of which carbon accounts for the development of animal heat. In alcoholic people the tissues, being saturated with carbon, are very readily combustible; but, in mystic subjects, the tissues are decarbonized and impregnated with nitrogen, so that they are almost incombustible. In the latter, also, the diminution in the activity of vegetative functions produces a state of "living mummification," and after death the body undergoes very slowly, if at all, the phenomena of decomposition; it is incorruptible.—("Revue Scientifique.")

Communication between the Auricles in Rickety Women.—The observation of three cases suggested to M. Perreymond the following reflections ("Union Méd.," No. 93, 1875). M. Bouvier (Leçons Cliniques sur les maladies chroniques de l'Appareil locomoteur") said that the lungs, being compressed in a narrow thorax, the more laboured circulation of the blood through these organs, and the weaker suction of the venous blood by the very limited movements of inspiration, produce, in rickety people, mechanical dilatation of the right cavities of the heart. This can only be the effect of the greater tension of the blood in the right than in the left cardiac cavities, and depends upon a somewhat laboured pulmonary circulation. Now, considering that rickety deformities of the thorax are produced in the first years of life, when adhesion very often has not yet taken place between the oval membrane and the anterior semilunar fold, when a fissure still persists between them, and allows the blood to pass through it (unless the tension of the blood be equal in both auricles); considering that—as the foramen ovale completely disappeared, small openings, with more or less oblique canals, still persist—the question will be whether the same causes that produce, in rickety people, the dilatation of the right cavities of the heart can or not, by means of a mechanical process, render the fissure permanently patulous, either by preventing its obliteration, by removing the oval membrane, or by enlarging the various apertures, and transforming them into a single orifice, more or less widely open. Does it not appear as though the venous blood, in order to escape into the aortic circulation, has a tendency to re-establish the ancient fœtal inter-auricular opening, whenever the pulmonary circulation is interfered with in a continuous manner, and especially in the first years of life?

Œdema of the Auriculo-Ventricular Valves in Children (by M. Fessy).—M. Parrot previously pointed out that, besides common inflammatory lesions, infants and children are subject to two different kinds of valvular nodes, viz., hæmatomata and simple nodules. Hæmatomata are small cysts, which contain fluid blood, and are found on the free margin of the tricuspid valve. Their formation, according to M. Parrot, takes place during the intra-uterine period. The simple nodules are small and mamillated protuberances, the seat of which is the margin of the auriculo-ventricular valves. In M. Parrot's opinion these simple nodules are hæmatomata, which have spontaneously undergone a curative process. On the contrary, M. Fessy believes that both hæmatomata and nodules are the mere effects of intense valvular œdema; in fact, the hearts of children who have died in the course of some acute disease, present on the free margin of the auriculo-ventricular, and especially of the mitral, valves, small, pink, pearl-like and transparent nodes, which are surrounded by a prominent ring; but no trace of local inflammation can be detected. Again, microscopical examination does not show any proliferation of connective tissue, and the lesions are merely those of simple œdema. This œdematous condition almost always affects both the tricuspid and the mitral valve, and is the more distinct in the younger children, especially when under four years of age. The etiology very probably consists in a laboured circulation, and also in the over-work imposed upon the heart by yet incompletely developed organs; in a word, the mechanism is very similar to that which produces valvular aneurisms subsequently to acute endocarditis, and of which MM. Cornil and Ranvier have given so accurate a description. Such lesions do not give rise to any functional disturbance. They should not be mistaken, on post-mortem examination, for traces of acute endocarditis, which affection is very rare in infants. M. Fessy collected forty-four cases to support his thesis.—("Lyon Méd.," May 28, 1876.)

Heart-Disease in Pregnancy, &c. (by M. P. Duroziez).—The hearts of 135 women were examined at the time of confinement, and they presented nearly the same dimensions as those of the heart in men, so that, instead of the normal height and breadth which, in female subjects, are respectively 9 and 12 centimetres, the measurements of these 135 hearts gave an average of 10 centimetres in height and 15 in breadth. The size of the heart increases with the number of confinements. At the term of a twelfth pregnancy the cardiac diameters were once found to be respectively equal to 11 and 17 centimetres.

Menstruation.—In twenty-seven cases of women who had borne children, and in whom cardiac disease seemed to have commenced during childhood, the catamænia made their first appearance at the age of 15 years, on an average; whilst in eighteen cases of women who had never been pregnant, about 17 years was found to be the average age. In these eighteen sterile women who were affected with heart-disease, menstruation was remarkably irregular. So it was also in half of those who had borne children, and they were the subjects of hæmoptysis and epistaxis. In several cases, bloody lochia, or so-called persistent catamænia, occurred during pregnancy, and abundant hæmorrhage took place at the moment of delivery, whether confinement at full term, premature labour, miscarriage, or abortion. Early mænopause was observed in these patients, which is not surprising, considering the frequent hæmorrhages to which they had been subject during the period of sexual vigour.

Abortion and Miscarriage.—Out of forty-one patients labouring under some cardiac affection, M. Duroziez met with twenty-one cases of abortion, miscarriage, or premature labour. Out of forty cases of heart-disease there were five still-births, and thirty deaths of the offspring before the age of five years.

Gestation.—With regard to the mother, although M. Duroziez is far from denying that gestation aggravates the morbid condition of the heart, most of the patients, in his opinion, survive to delivery.

Confinement.—With the exception of the danger of sudden death, the act of parturition does not of itself increase the jeopardy; but subsequently, œdematous effusions are apt to occur, or to ingravesce when they already existed.

Lactation.—In suckling women the heart was found 10 centimetres high, whilst in those who did not suckle it was only 9 centimetres; lactation, therefore, keeps up the cardiac hypertrophy.

Prognosis.—Rapid, or even sudden, death, abortion, miscarriage and premature labour, are accidents to be foreseen in cardiac subjects; but, on the whole, the chances of surviving prevail.

Treatment.—After the seventh month, and if intense dyspnœa threaten the death of both mother and child, premature labour should be induced as a last resource.

Prophylaxis.—A girl affected with serious cardiac disease should be advised not to marry.—("Lyon Méd.," Jan. 16, 1876.)

Bruit de Galop.—Patients affected with interstitial nephritis present a special cardiac bruit, called by M. Bouillaud "bruit de galop." According to M. Potain ("Union Méd.," 1875-76), this results from the abruptness with which the ventricle dilates during its præsystole, *i.e.*, during the auricular systole. This appears to be an indirect consequence of the excess of arterial tension, which interstitial nephritis usually determines by a mechanism, at present not well known. This bruit can lead us to diagnose a renal affection in the absence of all other signs; therefore it is an important element, both of diagnosis and prognosis, and can consequently afford us valuable therapeutic indications. According to M. Exchaquet ("Progrès Méd.," Jan. 1, 1876), the "bruit de galop" does not depend upon a reduplication, as Sibson asserted, but it is produced by the rubbing of the heart against the thoracic wall. The contact between the heart and the thoracic wall is rendered possible by the increased volume of the organ, owing, at first, to the dilatation of its cavities, and, subsequently to the hypertrophy of its walls. The enlarged heart displaces the layer of lung which separates it from the thoracic wall. This view is supported by the fact that the area of absolute dulness on percussion is increased at the præcordial region, and that the dullest point is found where the "bruit de galop" is most distinctly heard. This abnormal bruit is a very important diagnostic sign:—*a.* It is a præsystolic bruit, and it belongs to the so-called renal forms of simple hypertrophy of the heart. *b.* Albumen is always found in the urine of those subjects who present this bruit. *c.* This bruit does not exist in every form of nephritis; it is found at the various periods of chronic nephritis, and in certain interstitial forms of acute nephritis.

Systolic Mitral Bruit in Icterus (by M. Gongolphe).—Icterus produces temporary mitral regurgitation, which is due :—*a*. Probably, to slight cardiac dilatation. *b*. Mostly, to the paralysis of the papillary muscles which fail completely to shut the mitral valve. In M. Gongolphe's opinion, this muscular paralysis depends upon the toxic influence of the hepatic products, whether they act upon the cardiac muscle, or upon both the muscular tissue and motor nerves of the heart. The acceleration of the cardiac beats may generally prevent the production of mitral regurgitation, although a systolic blowing sound has been heard at the apex of the heart, while the pulse was accelerated.—(" Progrès Méd.," Jan. 1, 1876.)

Inoculability of Diphtheria.—From his experiments, M. G. Duchamp (" Thèse de Paris," 1875), found that :—*a*. Croupal membranes, when removed from the human larynx into the larynx and trachea of rabbits, produced diphtheria. *b*. Bacteria and liquid proceeding from the false membranes, caused only intense, but not diphtheritic, inflammation. *c*. Injected into the veins, the morbid products gave rise to phlebitic or septicæmic symptoms. *d*. False membranes, developed in rabbits through experimental inoculation, failed to produce diphtheria, when other rabbits were inoculated with them. *e*. Diphtheritic membranes from the larynx of men were inoculated under the skin of rabbits and horses without any result.—(" Progrès Méd.," Feb. 26, 1876.)

Inoculability of Tubercle.—M. Villemin concludes from his recent and previous experiments that :—*a*. Tubercle is inoculable, through the medium of the cellular tissue, by means of tubercular matter and of products of certain secretions from tubercular subjects. *b*. Tubercle is inoculable, through the medium of the digestive system, by means of the substances just mentioned. *c*. The visceral lesions, produced by introducing under the skin various pathological products, or altered normal tissues, and also those following suppurating sores, belong to pyæmia, which, formerly, in human subjects was confounded with tubercle, and which, nowadays, is still hardly known from it in rodentia, in which experiments have been made. According to M. Villemin, tubercle is a specific virus, like syphilis, which statistics show to be more often acquired by direct transmission, but which may also be hereditary.—(" Revue Scientifique," Oct. 23, 1875.)

Altitude and Phthisis.—M. Lecadre, at the Congress of Nantes, read a paper in which he observes that, although M. Jourdanet demonstrated that phthisical patients derive great benefit from their sojourn in high regions, phthisis is particularly rife amongst the St. Bernard monks, whose convent lies at 2,400 metres above the level of the sea. M. Lecadre thinks that the frequency of phthisis amongst these monks depends upon the cold to which the inhabitants of those mountains are often exposed. M. Houzé de l'Aulnoit suggested that the beneficial influence of great altitudes is due to the rarefied condition of the air, necessitating a full dilatation of the pulmonary cells.—("Revue Scientifique," Aug. 28, 1875.)

Pulmonary Phthisis in Diabetes.—According to M. Bourchardat, pulmonary phthisis, which so commonly supervenes on diabetes, is always tubercular. It is the result of general exhaustion, bad digestion of feculent food, the presence in the blood of an abnormal amount of glycose, the elimination of glycose through the kidneys, and the replacement of this excreted glycose by the slow destruction of the constituents of the blood, muscles, and other organs.—("Revue des Sc. Méd.," Tome vii., 1876).

Pneumonia in Measles.—M. Bouchut compares the mechanism of the production of pneumonia, and subsequent phthisis, in measles, to the development of similar affections from the respiration of mineral or vegetable dusts. In measles, the epithelial dust proceeding from the bronchi and lung-cells, when they are not properly emptied by expectoration, accumulates in the pulmonary alveoli, and this organic dust, by irritating the lobules, produces catarrhal pneumonia, which, if long continued, will give rise to phthisis. M. Bouchut accordingly recommends in measles, especially when complicated with broncho-pneumonia, the emptying of the pulmonary alveoli by means of expectorants, balsams and emetics.—("Gazette des Hôpit." No. xliii. 1876).

Hooping Cough.—M. N. Guéneau de Mussy says that the paroxysms in hooping cough are due to bronchial adenopathy, which, by compressing the bronchi, stimulates the vagi. Upon this glandular enlargement depends all paroxysmal cough, whether occurring in hooping cough or in bronchitis. Bronchial adenopathy develops during the first period of hooping cough, but it is during the second period that it can be best detected by the usual means of exploration of the chest. The same cause also produces the whimperings of the patients during sleep; and such whimperings, whether connected or not with hooping cough, always co-exist with enlargement of the bronchial glands. Similar in this respect to eruptive fevers, hooping cough is essentially contagious, and is invariably characterised by a specific eruption, which develops on the fauces and pharynx, and which does not disappear until the end of the third week.—("Union Méd.," 1875, No. lxxxi, et seq.)

Emphysema.—According to M. Villemin there is no pulmonary epithelium, but the walls of the pulmonary alveoli are constituted of connective and elastic tissue, in which blood vessels are very numerous. Between the meshes formed by the capillaries, M. Villemin admits the presence of connective elements, characterised by nuclei, surrounded by a small quantity of protoplasma. Under an influence, which still remains unknown, these nuclei become hypertrophied and granular. Instead of a living element we soon find a small collection f organic matter which has died through a process of fatty degeneration. This matter, being deprived of all vitality, will soon become destroyed, leaving in its stead a perforation; a communication is thus established between two alveoli previously isolated. This perforation does not remain single; subsequently, by the same process, several perforations of the same inter-alveolar wall are produced, then the elastic fibre, the retractile tendency of which is continuously in play, produces rupture. The vessels, being thus deprived of their support, become atrophied, and vascularity is diminished or abolished in the part. An infundibulum thus modified presents on its internal wall, instead of the small inter-alveolar septa, mere folds constituted of elastic fibres, which are the last remains of the septa. From such facts M. Villemin concludes that emphysema is entirely caused by bad local nutrition, and that the action of atmospheric pressure on the septa need not be invoked to explain its production. MM. Cornil and Ranvier cannot agree with these views of M. Villemin's. First, the epithelial cells, although they cannot be detected in dried lungs, are rendered evident when they are treated by nitrate of silver. Senile emphysema is certainly characterized by fatty degeneration of these epithelial cells, of the septa, and perhaps of the vessels also. This degeneration is the result of bad nutrition of the lung, but nothing demonstrates that cardiac and repeated bronchial affections are not the initial cause of the lesions, whilst there is no doubt that croup, hooping cough, and infantile broncho-pneumonia, can produce emphysema.—("Man. d'Histol. pathol.," 3 partie, 1876.)

Asphyxia Produced by Bronchial Froth.—Such is the title of a paper in which M. Piorry—amongst other important propositions, states that:—Any lung which, on post-mortem examination, is found crepitating and retaining its volume, is decidedly a morbid organ, the pathological condition of which is the cause of death. In the higher animals the pulmonary cells, in their normal state, must not contain any liquid; therefore, after death, no frothy liquid could be squeezed out of them. Again, a healthy lung should not crepitate after death, and, on the opening of the chest, it should collapse and lose much of its volume.—("Bulletin de l'Acad. de Méd.," June 15, 1875.)

Hæmoptysis in Old People.—M. L. Thomas ("Thèse de Paris," 1875,) says that suddenly fatal hæmoptysis is exceptional in old age. When it occurs, it is due to the rupture of a blood-vessel in a tubercular cavity, or it may also supervene during the course of pulmonary apoplexy. Aortic aneurism, as a cause of hæmoptysis, is more frequent in adults than in old people; in these, the most common cause of blood-spitting is the presence of cardiac affections, especially of mitral obstruction, combined with arterial atheroma. Hæmoptysis may also depend upon some morbid alteration of the pulmonary artery, in which case it behaves as in cardiac cases. Again, Rollett reported instances of scurvy, which, in old people, were complicated with pulmonary hæmorrhage. In advancing life bronchiectasis is by no means an unfrequent cause of puriform sputa streaked with blood, and even of abundant expectoration of pure blood; in such cases this symptom is not very serious, but if it occurs in tubercular subjects the prognosis is most unfavourable. In effect, hæmoptysis in old people is not an initial phenomenon, as it is in adults, but it generally co-exists with pulmonary cavities.—("Revue des Sc. Méd.," Tom. vii., 1876.)

Pulmonary Lesions Consecutive to Cerebral Affections.—According to M. Brown-Séquard the pulmonary lesions consecutive to wounds or galvanisation of the Pons Varolii, depend upon the irritation of the vaso-motor nerves. In M. Vulpian's opinion, the etiology of such lesions is not yet well known. They may be due to some reflex paralysis of the vaso-motor nerves, causing more or less complete loss of tone in the vessels; hence congestion, and, it may be, even rupture of the capillaries.—(Vulpian: "Leçons sur l'Appareil vaso-moteur," Tom. ii., 1875.)

Meningitis in Pneumonia (by M. A. Laveran).—Meningeal congestion, œdema, hæmorrhage, and even inflammation, may supervene on pneumonia through the medium of the ganglionic nerves, either by reflex action or by local nervous irritation. M. Laveran observed a case in which the great sympathetic nerve was more injected and the inferior cervical ganglion more pigmented on the same side as that affected with pneumonia; which supports the hypothesis of some local irritation. Nevertheless, M. Laveran does not believe that sympathetic irritation is sufficient of itself to account for the production of meningitis, but he thinks that such irritation causes the least exterior or individual influence to develop meningeal inflammation.—("Gazette Hebdomadaire," No. xlvi., 1875.)

Pleurisy Consecutive to Lesions of the Sympathetic Ganglions.—The sub-acute pleurisy which follows the removal of the inferior cervical, or of the first thoracic ganglion, is the mere result of the operation itself; in fact, no pleurisy occurs after the ablation, when this has been performed through the axilla, so as to afford a depending wound which allows the inflammatory liquids to escape without irritating the pleura (Bochefontaine and Carville). Moreover, pleurisy is not necessarily a constant consequence of the operation when this is made through the base of the neck.—(Vulpian: "Leçons sur l'Appareil vaso-moteur," Tom. ii., 1875.)

Death after Thoracentesis (by M. E. Foucard).—Death following thoracentesis may come from the brain, heart, or lung. Cerebral embolism, although it has been observed in pleuritic cases, has not, until now, been mentioned in fatal cases of thoracentesis. According to M. Legroux, death may be caused by cerebral anæmia, but M.

oucard does not share this opinion. When death comes from the heart, clots are found either in this organ or in the pulmonary circulation, owing to: *a*. Bad general state; *b*. Anæmia; *c*. Cachexia; *d*. Diathesis. Thoracentesis does not play any part in the migration or formation of these clots, and death may be determined by a movement or an emotion. It may also be due to pericarditis, or supervene through syncope, perhaps by reflex action. When death occurs from the lung, we observe pulmonary congestion and œdema, with or without albuminous expectoration. Other causes, as pneumonia or atelectasis, might be suggested, but, at present, we have no post-mortem examination to support this view. Spontaneous rupture of the lung and its wound by the trocar are erroneous theories, for which we should substitute congestion, which can produce asphyxia, either of itself by disturbing the hæmatosis, or by causing œdema, and thus stopping the circulation of the air through the smaller bronchi. M. Terrillon ("Thèse," 1872) demonstrated that albuminous expectoration is due to congestion of the lung.—("Union Méd.," No. xxxix., 1876.)

DIAGNOSIS.

Aortic Regurgitation (by M. P. Duroziez).—In cases of aortic regurgitation the arteries are jerking and the heart is quiet, whilst in cases of mitral obstruction the arteries are quiet and the apex of the heart is jerking. When both these affections co-exist in the same subject the impulse is moderate. A jerking apex, in a case of aortic regurgitation, should lead us to suspect mitral obstruction. If both carotids and cardiac apex are jerking, it is almost certain that both mitral obstruction and aortic regurgitation are present. Many a case of aortic regurgitation has been mistaken for a pericardial effusion; it is easy to understand how such an error can take place. In cases of aortic regurgitation the left ventricle becomes, in effect, a real aneurism, at the bottom of which clots may deposit; hence extensive dulness at the præcordial region. Again, the ventricular systole is weakened by the arterial pressure and by the fibro-fatty degeneration of the muscular fibre of the heart, the texture of which becomes similar to that of the arterial walls, hence, immobility of the præcordial region. This immobility need not be always absolute; thus the sensation is not the same to the eye and to the hand. Sometimes no movement is seen, although the hand still feels an impulse. Of course the sounds cannot be heard when no impulse can be felt; the want of impulse at the apex is a still more important sign than the immobility of the surface. In cases of aortic regurgitation the first sound is dicrotic [bruit de galop]; this sign is more distinctly ascertained by palpation than by the cardiograph. It is easily detected in all the arteries, and especially in the crural and brachial arteries.

An important point is that the pulse is not equally modified in all the arteries at the same moment in the same subject. Thus, the modification will be most marked, sometimes in the carotid, sometimes in the crural, and at other times in the brachial arteries. Consequently all the arteries should be examined on both sides. In cases of aortic regurgitation, not only is the apex of the heart not felt outwards, but it is drawn backwards. In some cases the apex is replaced by a hernia of the outer layer, and the part which represented the apex, and where the right ventricle ended, is displaced upwards and inwards. During the systole the inferior extremity of the heart is seen to be drawn back and depressed, while an impulse from behind forwards is produced in the next superior intercostal space, so that we have a reciprocating motion. But if we apply our finger we shall feel an impulse where we can see a depression produced. This difference between the impressions perceived by the hand and eye might, at first, induce us to call that diastole, which is really the systole. *Vice versâ*, with the diastole, the eye will see a propulsion, although the hand does not feel any impulse; sometimes, with the diastole, the eye sees a vibratory motion, graphically indicated by M. Marey's jerking ascending line.—("Union Méd.," April 4, 1876.)

Aortic Aneurism.—M. Ordonneau puts great stress, in cases of aneurism of the ascending aorta, upon the frequency of pneumonia, arising from the compression either of a nerve or of a bronchus. Again, he calls our attention to this point, that the symptoms of compression seem to be almost independent of the volume of the aneurismal tumour, whilst they chiefly depend on its position; so that, when the stethoscopic signs are insufficient to account for the intensity of the danger, urgent symptoms, threatening imminent suffocation, might induce us to perform tracheotomy, if we did not take notice of the condition of the voice, which, in case of aneurism, is likely to have lost part of its strength, but remains unaltered with regard to its tone.—("Thèse de Paris," 1875.)

Cardiac Affections in Children (by M. J. Simon).—General symptoms in children do not supervene in the earlier stages of cardiac affections. The heart must, therefore, be frequently examined, especially in those children who present some bulging at the præcordial region. It is a noteworthy fact that, before the age of ten years, anæmia does not produce any cardiac blowing sound; thus, under that age, all blowing sound, even when it is heard at the base of the heart and with the systole, is a sign that the organ is diseased. Another equally important point is the irregularity which morbid cardiac sounds present in children, so that frequent auscultation is quite necessary. Lastly, the prognosis of cardiac affections in children is still more difficult than it is in adults.—("Journ. de Méd. et de Chir. Prat.," Tom. xlvii., 1876.)

Elimination of Phosphates in Chlorosis and Phthisis.—M. Teissier read, at the Congress of Nantes, a communication in which he concludes that :—*a.* Any chlorotic patient who, without taking a very animal diet, presents, even if she is wasting, some diminution of the excreted quantity of phosphates, is not likely to get pulmonary phthisis. *b.* Any chlorotic patient who, whatever her diet may be, presents some increase of the excreted quantity of phosphates, is in great jeopardy of becoming phthisical. In healthy conditions the urine contains a daily average of from 30 to 45 grains of phosphatic salts, and of 30 grains of phosphoric acid. It results, from M. Teissier's observation of nearly 250 cases of chlorosis, that the amount of phosphates varied up to 36 grains per litre of urine, and that the corresponding rate of phosphoric acid was found to oscillate between 3 and 19 grains, whilst in phthisical subjects the quantity of phosphates reached the average of from 45 to 90 grains per litre of urine. The urine was examined in the morning before all meals. As a means of testing the above experiments, M. Teissier during five days took animal food exclusively, and then he found the quantity of the phosphates excreted in his own urine to be increased, but much less so than is usual in the urine of phthisical patients.—("Rev. Scient.," Aug. 28, 1875.)

Meningitis in Pneumonia.—M. E. Surugue collected twelve cases of pneumonia, which exhibited every possible degree between, and including, vascular congestion of the pia-mater and the purulent products of typical meningitis. Sometimes the apoplectic symptoms may be so developed as to hide those of pneumonia, which may be overlooked. But, in such cases, the thermometer may help us in making a distinctive diagnosis. The temperature always falls at the onset of idiopathic apoplexy. If, therefore, the temperature is found as high as 99·5° Fahr., pneumonia very probably is present; again, the frequency of the pulse is never diminished in mere pneumonic cases, so that, if we find it slower than usual, we should suspect some cerebral complication. The condition of the pupil may also afford us some diagnostic indication. Meningitis, when it is connected with pneumonia, is almost invariably fatal. The best treatment seems to be to leech and cup the nape of the neck or the base of the mastoid processes.—("Thèse de Paris," 1875, and "Rev. des Sc. Méd.," Tom. vii., 1876.)

Signs of Abundant Pleuritic Effusion (by M. Bouilly).—Inspection: The bulging of the costal interspaces is, as a rule, a point very difficult to ascertain; so is a bulging of a whole side of the chest. But local bulging indicates encysted effusion, while the bulging of the costo-vertebral depression is a very good sign of the abundance of the effusion. Percussion: Dull percussion, when found in front and below the clavicle, is an excellent indication of abundant effusion, and the nearer the clavicle we find the dulness the more abundant will be the effusion. Palpation: Total absence of vibrations on palpation, corresponding with the whole extent of the area dull on percussion, is a characteristic sign of abundant effusion, especially when found in front; so is the want of elasticity of the thoracic walls on pressure; but the displacement of the liver or heart proves little of itself. Auscultation: The same remark applies to blowing and ægophonic sounds, but the complete absence of ausculatory sounds is a most valuable sign that the effusion is abundant; so that when at the same time we find, in front and in the same area, dull percussion, want of parietal elasticity, and absence of all ausculatory sounds, we can boldly affirm that the effusion is abundant.—("Archiv. Gén. de Méd.," 1876.)

Pathology and Morbid Anatomy.

Rupture of Aortic Aneurism into the Trachea and Bronchi.—M. Ordonneau collected 72 cases of aneurism of the arch of the aorta. Death occurred from suffocation in 27 instances; from rupture in 29; and from various other causes in 16. Out of these 29 cases in which rupture took place, the aneurism burst into the trachea or bronchi 7 times, into the pericardium 5 times, into the pleura 7 times, into the œsophagus 4 times, and once only the tumour opened exteriorly. The post-mortem examination does not always reveal traces of inflammation, but in numerous cases the evidence of previous inflammatory action is unmistakable. Then the respiratory mucous membrane has lost its bright red hue; it presents a dark livid coloration [Andral], and sometimes a pale aspect, due to chronic catarrh [Bayle]. The perforation has a neat and well defined margin; it may be single, or we may find a great number of very narrow holes, similar to those made by a large pin—"cribriform." The ulcerative process develops, as a rule, from within the air-tube, starting from its mucous membrane [Gairdner]. The clots lining the aneurismal pouch may either persist and stop up the aperture, or they may become softened and destroyed. Owing to the presence of these obturating clots, cases are on record in which the patients survived weeks, months, and even years, after hæmoptysis had occurred from ruptured aneurism. Sometimes, however, the ulcerative process begins in the artery and progresses towards the respiratory tube, which order of events the authors of the "Compendium de Chirurgie" are wrong in considering the more frequent. But ulceration, although the more common by far, is not the only mode by which perforation is produced, for this may also be the result of sphacelus, which may very possibly supervene when the flattening of the trachea is such that two opposite points of its wall are brought into contact with each other; in which case a beginning of ulceration may sometimes be seen diametrically opposite to the opening. Chomel's opinion was that the cartilaginous rings resist less than the soft tissues which surround them. In this he was in error, as the rings, in many instances, have been found unaltered where the soft parts had disappeared. Considering that patients affected with aneurism are, for the most part, alcoholic people, M. Ordonneau suggests that the unstriped muscular fibre of the trachea has perhaps undergone granulo-fatty degeneration, favourable to the ulcerative evolution. More often, however, the rings become indurated, friable, and creaking under the scalpel, from infiltration with calcareous deposit—incipient ossification.—("Thèse de Paris," 1875.)

Diphtheritic Membrane.—It has often been discussed whether the diphtheritic membrane lies on or under the epithelium. According to MM. Cornil and Ranvier, this membrane is formed precisely in the superficial layer of the epithelial investment, and partly at its expense; most often the sub-epithelial connective tissue is sound, although the mucous surface appears uneven and ulcerated; sometimes, however, that tissue itself becomes inflamed, and very superficial ulceration may be observed. Sporules of microscopical fungi are found in the false membrane; their characters have not yet been well determined. The false membrane is constituted of fibrinous filaments, purulent globules, and epithelial cells, which are modified in their form and chemical composition. Vessels are never found in the false membrane, therefore the ecchymotic patches which are often seen on its adherent surface are mere stains from imbibition by hæmorrhage from the subjacent mucous membrane, which, owing to a state of hyperæmia, is red, infiltrated and softened.—(Cornil and Ranvier: "Manuel d'Histol. Pathol.," 3 ème partie, 1876.)

Alteration of Elastic Fibre.—In a case of broncho-pneumonia in a syphilitic subject, MM. Cornil and Ranvier found the fasciculi of elastic fibre thickened, refracting, vitreous, rigid, and showing neat, transverse and irregular ruptures. Many fasciculi were lengthwise dissociated, and their isolated filaments presented the same refractive power, tumefaction, and readiness to rupture, as the fasciculi themselves. In the portion of the lungs affected with broncho-pneumonia, the greatest part of the elastic fibre was altered. This fibre was modified by no reagent; acetic acid, however, made it swell, thus diminishing the intervals between the ruptured points. The preparations, hardened in Müller's liquid, gum, and alcohol, showed that the lesions of the elastic fibre were most rife in the parts where regressive catarrhal pneumonia, with partial atrophy of the capillary vessels, was found.—(Cornil and Ranvier: "Manuel d'Histol. Pathol.," 3ème partie, 1876.)

Tubercle.—The giant cells described by O. Schüppel as being constituted of some granular protoplasma containing nuclei, are nothing else but fibrinous coagulum and endothelial cells, mixed with white corpuscles, and obliterating the blood-vessels.—(Cornil and Ranvier: "Manuel d'Histol. Pathol.," 3ème partie, 1876.)

Buccal Tubercle.—The most common seat of buccal tubercle is the tip and edges of the tongue, but it may be the tonsils, the velum, the base of the tongue, or the posterior wall of the pharynx. At the onset several small granulations appear on the surface of the derma; their centre soon becomes opaque and yellow; soon, also, ulceration supervenes, with an irregular and indented margin and a granular surface, showing small and greyish-pink nodules, which are the hypertrophied papillæ of the tongue. Besides numerous embryonic cells, such as those which are seen in cases of simple inflammation, M. Thaon, in a case of ulceration of the tongue, saw small and very characteristic tubercular granulations. These were seated in the intermuscular connective tissue, which lies in the deeper layer under the ulceration. MM. Cornil and Ranvier met several times with similar instances. Again, the same authors and M. Bernutz, in a case of total hypertrophy with ulceration of the velum in a tubercular subject, saw, besides a few unquestionable tubercular granulations, also inflammation of the connective tissue, which had become embryonic, hypertrophy of the glandular acini, and fatty degeneration of their epithelial cells. Tubercle of the tongue or velum can be diagnosed from gummata, because the initial volume of these is considerable, and because their centre, after becoming caseous, is hard and yellowish. Moreover, microscopical examination fails to show, in cases of gummata, those very small tubercles measuring from $\frac{1}{20}$ to $\frac{1}{5}$ of a millimetre in diameter, which, in tubercular cases, are detected between the muscular fasciculi. Nevertheless, with our present knowledge, the diagnosis between these affections still remains very uncertain.—(Cornil and Ranvier: "Manuel d'Histol. Pathol.," 3ème partie, 1876.)

Clots of Liquid Effusions (by M. G. Birot).—*a.* The clot of inflammatory effusions is a tissue of mycrozymes. *b.* These microzymes are active and living ferments. In fact, microscopical examination shows numerous bacteria of various sizes, and isolated and compound microzymes of 0·0005 millimetre in diameter. The proof that the clot is produced by these microzymes is that, when, by filtering, you remove the greater part of them, no clot forms in the filtered liquid. But, as filtration fails to remove all the microzymes, those which remain in the liquid, multiply in time, and, through their fermentative properties, they subsequently produce putrefaction. If the clot be treated by a mixture of starch and creasote, fermentation will develop, the clot will entirely dissolve, and the microzymes, being set at liberty, will evolve and become bacteria; while the fibrin will completely disappear. If fermentation is allowed to go on, enough glycose will form to reduce the cupro-potassic reagent, and the microscope will show a considerable number of bacteria, which are longer than they were before the glycogenic fermentation; while free microzymes are then very scarce. It is well known that the more inflammatory the effusion, the more readily will the clot form. Again, the more acute the inflammation, the more numerous will be the microzymes. In mere mechanical effusions, these are very rare indeed.—("Lyon Méd.," Jan. 30, 1876.)

CLINICAL MEDICINE.

Chronic Caseous Tonsillitis (by M. Bouchut).—Chronic caseous tonsillitis is characterised by white spots, the result of hypertrophy and chronic inflammation of the follicles of the tonsils. These caseous products are constituted of fatty matter, with or without odour, and intermixed with altered epithelial cells. Their volume varies from that of a hemp seed to that of a mulberry, the external figure of which they sometimes present. They remain in situ for weeks and months, and they are reproduced after removal. However, if you persevere, you will finally succeed in getting rid of them.—("Acad. des Sc." April 17, 1876.)

Intermittent Broncho-Pneumonia.—The following propositions are the conclusions arrived at in a paper by M. Bourgade:—*a.* Remittent or intermittent broncho-pneumonia is pretty frequently met with in the central parts of France. It constitutes a morbid species which is essentially distinct from inflammatory pneumonia. It should be classed amongst the abnormal forms of marsh-fever. *b.* It is characterised by remittent fever with special congestion of the bronchi and lungs. *c.* It differs from pneumonia in the great mutability of its seat and the order in which the physical signs evolve; in its irregular course, and, chiefly, in its periodical, either quotidian or tertian, febrile exacerbations. These are indicated by a sudden elevation of temperature of about four degrees Fahr., and by a subsequent and rapid fall of temperature after an interval of some hours. *d.* The curative treatment consists in prescribing sulphate of quinia, as nearly as possible at the onset of the disease. *e.* In the absence of special indications, the local affection may be neglected, as the febrifuge remedy will suffice to cure.—("Bulletin de l'Acad. de Méd.," Jan. 11, 1876).

Pulmonary Embolism (by M. G. Alphéron).—Pulmonary embolism is benignant or malignant, according as the clot is small and of healthy fibrin, or morbid, *i.e.*, gangrenous or putrid. Benignant embolism presents a marked tendency to cure by becoming either absorbed or organized. Therefore, especially when it occupies small capillaries, benignant embolism may often escape our notice. But, were not their presence so difficult to detect, we should find that cases of a benignant nature are, in reality, far more numerous than they appear to be. The recurrence of the symptoms often leads us to the true diagnosis of their cause. A patient who has once been the subject of embolism is generally exposed to relapses, as long as the morbid cause persists. In a cachectic subject, a healthy clot may sometimes give rise to the same phenomena as those of malignant embolism. M. Alphéron observed cases of carcinomatous cachexia, in the course of which both benignant and malignant embolism occurred. From all this, it results that the diagnosis of the nature of a case of embolism is often very obscure.—("Thèse de Paris," 1875, and "Revue des Sc. Méd.," Tome vii., 1876).

Pulmonary Gangrene.—M. Bucquoy concludes a paper on pulmonary gangrene with the following propositions:—*a.* In the present condition of our knowledge, we cannot affirm the presence of primary acute pleuritic gangrene, in the absence of pulmonary gangrene. *b.* Pleurisy may precede, accompany or follow pulmonary gangrene, especially when this is superficial. However, unless communication is established between the pulmonary and the pleural cavity, pleurisy will not become fœtid. *c.* Acute and accidental pulmonary gangrene presents, therefore, two distinct clinical forms, viz., the pulmonic or deeply-seated, and the pleuritic or superficial form. In both we find intense and persistent pain in the side, fits of dyspnœa, incessant cough, expectoration either *nil* or of no importance until the appearance of bloody sputum or even of true hæmoptysis. *d.* In the pleuritic form, the effusion may be fœtid, but with an absence of all gangrenous odour, either of the breath or of the expectoration. This absence may often be ascertained even in old standing cases and when the pulmonary lesions are extensive. If the gangrenous fluid escapes into the pleura suddenly and in the absence of all previous pleuritic inflammation, the fatal termination will be more rapid and more unavoidable. As long as no communication is established between the gangrenous focus and the pleural cavity, and while the pleuritic effusion, which in such cases is always purulent, remains circumscribed and encysted, the prognosis will not be much aggravated. *e.* Prolonged exposure to intense cold is unquestionably the most frequent cause of acute gangrenous affection of the lung and pleura. This disease generally attacks robust and healthy subjects. In some cases, it may be produced by violent contusions resulting from direct injury of the chest. *f.* When pleurisy is secondary and when the gangrenous fragments of the pulmonary focus are mixed with the effusion, however slight the chance of success may be, tapping should be resorted to without any loss of time. This treatment is also indicated when, although the breath and expectoration are free from gangrenous odour, puncture has discovered the fœtidness of the effusion.—("Union Méd.," No. lxxxiv. et seq., 1875.)

Temperature in Pneumonia.—M. Landrieux took the axillary temperature of forty-six patients, twenty-one of whom were affected with double, and twenty-five with single pneumonia. Out of these twenty-five, fourteen were cases of lobar pneumonia; and out of these fourteen cases, the temperature in twelve was found higher on the diseased than on the other side. Thus, it was higher by 0·18° Fahr. three times; by 0·36° Fahr. five times; by 0·54° Fahr. once; and by 0·76° Fahr. twice. In the two other cases, the temperature was the same in both axillæ; but M. Landrieux remarks that, in both of these cases, the lung was tubercular and had suppurated. Therefore, in the first stage of pneumonia, a higher temperature on the affected than on the sound side is the rule; and when no difference is found, suppuration should be suspected. In this occurrence, the temperature may even be lower on the diseased than on the opposite side. Now, out of the twenty-one cases in which both lungs were inflamed, five times the temperature rose as high on the side subsequently attacked as on the other; once it was higher by 0·18° Fahr.; three times, by 0·36° Fahr.; four times by 0·54° Fahr.; once by 0·75°; and once by 1·46° Fahr. In cases of catarrhal pneumonia, the temperature was found by 0·18° 0·36°, and 0·54° Fahr., higher on the pneumonic than on the other side. The elevation of temperature preceded by, sometimes, twelve hours; more often, thirty-six; and more seldom, forty-eight hours, the appearance of the new pneumonia. But, soon, the temperature of the side subsequently affected ceased to exceed, or even fell below, that of the side primarily diseased. The morbid products, generally at this time, began to be absorbed and their regressive transformation caused a slight increase of the temperature of the corresponding axilla From these facts, it results that the maximum of temperature does not correspond with an already accomplished inflammatory process but with one in course of evolution.—("Gaz. des Hôp.," No. cxxii., 1875.)

Temperature after Thoracentesis.—M. A. Jobé-Duval, in forty-three, cases of pleurisy, ascertained that the temperature is always higher on the diseased side than on the other, and that, during the days which follow thoracentesis, the temperature remains, by about one degree Fahr., higher on the punctured side than on the other.—("Thèse de Paris," 1875, and "Gaz. Hebd.," June 25, 1875.)

Acute Miliary Pharyngo-Laryngeal Tubercle (by M. E. Isambert).—Acute miliary tubercle of the fauces corresponds with miliary pulmonary tubercle, grey infiltration of Laënnec, and granulia of M. Empis. It is anatomically characterised by grey granular deposits in the mucous membrane. These granulations generally are confluent; they cluster and form patches which present a sinuous border, a shagreened or mamillated surface, and a greyish coloration, which, though it is paler, is similar to that of syphilitic ulcers. These tubercular patches are surrounded by a very narrow inflammatory area, the hue of which is dull red, and which on its border melts into the pink colour of the healthy mucous membrane. Tubercular deposits are chiefly found on the anterior face of the velum and on the anterior pillars; less frequently so on the uvula and on the posterior pillars; and more seldom still on the tonsils and on the posterior part of the pharynx. Sometimes the edges of the pillars and of the velum present superficial erosions, and in some cases also tubercle may, by accumulating on the uvula, produce deformity and considerable enlargement. In a more advanced stage the pharyngeal lesions extend to the epiglottis, and even to the larynx. Again, with the progress of the disease, the granulations become larger and larger, and they melt together. Caseous degeneration sets in, and ulceration is produced. The initial symptoms are a sensation of heat, and some pain during deglutition; but, as tubercle develops and multiplies, dysphagia becomes more and more intense, so that at last the patient cannot swallow solids or even liquids. Then the voice becomes altered, while pulmonary tubercle, which has simultaneously developed, makes rapid progress. It is important to mention that, until the present day, œdema glottidis, laryngeal stricture and paroxysms of dyspnœa, which are so common in ordinary laryngeal phthisis, have not been observed in miliary tubercle. On three post-mortem examinations, MM. Bucquoy and Isambert found the lungs infiltrated with miliary tubercle. In one of these three cases M. Troisier, and in another one MM. Grancher and Hanot, ascertained with the microscope the presence of grey tubercle in the mucous membrane, and even in the sub-mucous tissue. Miliary tubercle may be diagnosed from common laryngeal phthisis as follows:—*a.* In miliary tubercle the pharynx is the primary seat of the lesion, and consequently dysphagia is the initial symptom, whilst the larynx is only affected secondarily. *b.* Miliary tubercle does not, like common laryngeal phthisis, proceed by inflammatory exacerbations. *c.* Again, it does not, at least in an early stage, assume the ulcerative form which is special to common laryngeal phthisis. *d.* Lastly, in miliary tubercle, the absence of all suffocation and laryngeal œdema is remarkable. Of course, the treatment can only be palliative, it should consist in calming the pain and relieving the dysphagia. Cauterisation is not well borne, and is perfectly useless. Lotions, with a strong solution of morphia in glycerine (one part at least in twenty-five), and the use of ice, have sometimes afforded slight relief. Mercurials should never be used, for in those cases in which miliary tubercle was mistaken for syphilitic lesions, the fatal termination was much accelerated by the mercurial treatment which had been instituted.—("Annales des Maladies de l'Orielle et du Larynx," No. 2.)

Pleuritic Effusion in Tubercular Subjects.—M. Leudet, at the Congress of Nantes, read a paper, the conclusions in which are as follows:—*a.* During the course of pulmonary tubercle, effusion may take place in the pleura. *b.* This effusion is most often pseudo-membranous, but it may be serous, purulent or hæmorrhagic. *c.* An effusion, filling up a whole pleura, is more often tubercular than idiopathic. *d.* The patients who die with pleuritic effusion, frequently present pulmonary cavities, tubercle partly stopped in its development, or cretaceous tubercle; in a word, all the lesions of regressive tubercular disease, especially those belonging to the irregular forms of phthisis. More seldom, both lungs present softened tubercle. Lastly, and more rarely, still, the only lesion found may be miliary tubercle. *e.* Tubercle is not more widely spread, nor does it present a more advanced stage on the side of the effusion. Often, it is even less marked on that side than on the other. *f.* Abundant pleuritic effusion, most often, is not a cause of death by its abundance. *g.* Some patients die in a cachectic state, and that before the complete re-absorption of the effusion. *h.* Two-thirds of the patients affected with abundant pleuritic effusion, during the course of pulmonary tubercle, recover from the pleuritic effusion. *i.* The recovery from the effusion, as a rule, takes a longer time than it does in the case of non-tubercular subjects. *j.* Empyema, in tubercular patients, can be cured. *k.* Abundant pleuritic effusion, most often, does not accelerate the progress of pulmonary tubercle. As a rule, it does not produce a more rapid evolution of the tubercular disease in that lung which corresponds with the seat of the effusion than it does in the other. *l.* Empyæma does not seem to accelerate the development of pulmonary tubercle.—("Revue Scient.," No. x., 1875.)

Syphilitic Phthisis (by M. A. Fournier).—Many physicians still persist in denying the existence of syphilitic phthisis, because this affection does not present special and pathognomonic signs which afford a material demonstration of its syphilitic nature. Thus, as Vidal said, they let their so-called tubercular patients die for want of anti-syphilitic treatment. Syphilis, says M. Fournier, may act upon the lungs in two distinct ways, viz.:—*a.* It may act directly, through its specific influence, by producing specific lesions which no other cause could produce. *b.* It may, also, through the medium of the nutritive disturbance which it causes, act indirectly by producing common lesions, *i.e.* tubercle; in other words, syphilis may sometimes give rise to common phthisis. If it were not overlooked, as it most often is, pulmonary syphilis would not be found to be so rare an affection as it seems to be. It is a tertiary complication of the specific diathesis, and it may appear five, ten, or fifteen years, or even much later, from the beginning of this disease. The pulmonary lesions, which are so common in fœtuses and infants, demonstrate that the affection may unquestionably be hereditary. It is worth while, however, to point out this fact, namely, that the pulmonary symptoms from congenital syphilis may only develop in more or less advancing life. Thus, M. Lancereaux reported a case of fatal syphilitic phthisis which broke out at the age of forty-one years in a woman who was syphilitic from birth. *Morbid Anatomy.* Although it has been asserted that syphilis may produce acute pulmonary lesions, up to the present day we have on record no well-established case of acute syphilitic pneumonia or bronchitis.

The chronic lesions which syphilis is liable to produce in the lung do not differ at all from those which it usually develops in other organs. These lesions may be of two different sorts—viz., simple hyperplasia and gummata. *a.* Simple hyperplasic pneumopathy. Syphilitic interstitial hepatic hyperplasia is well known to consist in some cellular proliferation of the interstitial connective-tissue. This stifles the acini, becomes organised, gradually substitutes itself for the atrophied hepatic parenchyma, and finally produces sclerosis. In syphilitic hyperplasic pneumopathy, the process is exactly the same as in interstitial hepatitis. Thus, cell proliferation takes place in the interlobular connective-tissue. This becomes thickened and flattens the alveoli, the cells of which undergo morbid degeneration. The new and embryonic tissue which results from this proliferation soon becomes organised, and forms more or less resisting cellular and fibroid masses. Thus are produced more or less voluminous nuclei of interstitial pneumonia; or, if further progress be made, even true sclerous patches may be formed. The bronchial tubes which terminate in these sclerous foci are generally found altered in shape, flattened, obliterated, and ending in ampullæ. The true pulmonary parenchyma has disappeared, and has been replaced by some compact stroma, which, at first, is fibroid, but which, in a more advanced stage, becomes sclerous. Lesions of the same sort may also, as before said, be found in other organs as well as in the lung. They may be either circumscribed or diffuse. They usually are limited, and they form in the lung disseminated and well-circumscribed nuclei. More seldom, they may occupy a considerable portion of a pulmonary lobe, or even the whole of a lobe. The affected parts present callous, hard, and elastic nodes, which are air-tight, and which, consequently, do not crepitate. They vary in their colour, which often may be either whitish or spotted with greyish or greyish-blue pigment. They also vary in their volume, which may exceed that of a walnut. When they are superficial, they are accompanied with considerable thickening of the pleura, exactly like that which is observed in the serous investments of the liver and testis. This thickened serous membrane consists of a fibrous, nacreous, and shining layer of from one to two millimetres. When they are recent, these nodes may bulge on the surface of the lung, whilst, when they are more ancient, they present depressions. These, which resemble the hepatic depressions, are irregular in shape, more or less extensive, starred, and of a greyish-white tinge.

b. Gummata. These are the same in the lung as in other organs. In their raw state they form solid tumours, which are consistent, homogeneous, dry on cutting, compact, and of a yellowish-white or greyish-yellow colour. They present a caseous centre, either a rounded or a somewhat irregular shape, and a volume which may vary between that of a hemp-seed and of a walnut. Pulmonary gummata generally are few, and more usually they are single. It is seldom the case that more than eight are found in the lungs. When there are several, they almost always cluster close to each other, and are connected together by some indurated and fibrous tissue. They are not immediately deposited in the lung-tissue. But they are always separated from this by an intermediate layer of fibrous tissue which is condensed, greyish, and vascular, and which constitutes for them, not a real cyst, but a kind of peripheric shell. Gummata, generally, are localised in one lung. They are more often superficial than deeply seated, and they may be indifferently found in any lobe of the organ. Like all the other gummatous products, they undergo, in their centre, granulo-fatty degeneration, which extends to their peripheric portion. In this way they soften gradually and slowly, and they become changed into a yellowish pulp, and subsequently into puriform matter. Then, like subcutaneous gummata, they develop in the surrounding parts an ulcerative process, which erodes and perforates the different bronchial tubes. After which the softened matter escapes into the bronchi and is evacuated. The walls of the cavity, thus formed, are internally lined with a white and caseous substance, which is the remains of the gummatous tissue. Externally, they are invested by that condensed, hard, greyish, and fibroid tissue which formed the peripheric shell of the tumour. This cavity may be large enough to contain a walnut, or even, but exceptionally so, a hen's egg. Its shape is more or less irregular, according as it has been formed either by the softening of several clustered gummata which were connected together, or by that of a single tumour. It necessarily opens into one or more bronchial tubes, the capillaries of which have been destroyed, and of which the mucous membrane is thickened, red, purple, granular, and sometimes ulcerated. Lastly, if the lesion lie at the surface of the lung, the corresponding point of the pleura will be found considerably thickened and adherent to the costal parietes.

Thus formed, a gummatous cavity may remain so for a long time, during which it gradually achieves the evacuation of its gummatous contents. If death do not occur in the mean time, an ulterior process may possibly cause the cavernous walls to retract, to melt together, and thus to occlude the cavity. This view is supported by the discovery, in the pulmonary parenchyma, of certain wrinkled, radiated and starred scars. It is probable, however, that only small cavities may undergo this healing process. Gummatous products most frequently co-exist with the hyperplastic form, and gummatous foci are almost always found surrounded with interstitial pneumonia. In other cases a pulmonary lobe may be almost entirely filled up with combined interstitial pneumonia and gummatous deposit.

Difference between gummata and tubercle:—*a*. In their seat:—whilst tubercle generally occupies both lungs, and especially their apices; gummata are more usually localised in one organ, and perhaps they are more often found in the middle and in the inferior than in the superior lobe. *b*. In their number:—instead of being confluent, as tubercle generally is, pulmonary gummata are very few, and often they are even single. *c*. In their volume:—gummata are never miliary, like tubercle. *d*. In their colour:—gummata are always either white or yellow, and they are never semi-transparent, as tubercle is in a certain stage. *e*. In their consistency:—before softening, gummata are more consistent than tubercle; and even after softening, they are still more so on account of the presence of their hard and resisting peripheric shell, the analogue of which tubercle does not possess. *f*. In their microscopical characters:—M. Cornil acknowledges that the diagnosis is rather difficult. However, it may be said that the centre of gummata is constituted of large and granular bodies, whilst that of tubercle presents only atrophied and very finely granular nuclei.

Symptoms. First stage:—in this stage syphilitic pulmonary lesions are almost completely latent, and, until a much later period, no symptom may reveal their presence, either to the patient or to the physician. Second stage:—in a more advanced stage, and when the anatomical lesions have acquired a certain degree of development, we may observe some slight dyspnœa, some cough, which at first is rare, weak, and most often dry, some scanty expectoration, and nothing else. At the same time the physical signs may be very little marked, or even if the lesion be deeply seated, they may be absolutely nil. If, however, this be superficial, we may, in some circumscribed part, find somewhat less clear percussion, weaker respiratory murmur, or, possibly, some harshness of this murmur, with prolonged expiration, or even slight blowing, or, but more seldom, true bronchial blowing. Third stage:—as the lesions progress, both in extent and evolution, both functional and physical signs become a little more accentuated. Thus, the dyspnœa increases, although it never becomes intense; the cough becomes stronger, and sometimes paroxysmal; the expectoration, which increases in quantity, becomes yellow, catarrho-purulent, or even purulent. In addition, hæmoptysis is rather common in this stage. M. Fournier remarks, by the way, that if hæmoptysis may, perhaps, be a less frequent complication of syphilitic than of tubercular phthisis, it is a great mistake to believe that this accident is rare in syphilitic subjects. Then the general functions, which, until this time, had remained untouched, become impaired in the same manner as in tubercle. Constitutional symptoms appear, such as decoloration of the skin, wasting, debility, langour, anorexia, digestive disturbance, etc. In a still later period, hectic phenomena, viz., night-sweats, evening feverishness, increasing emaciation and marasmus supervene. Then death occurs, as in common phthisis, *i.e.*, from the continuous progress of slow consumption. In this ultimate period, the physical signs become more marked, and cavernous sounds may be detected.

Varieties. a. When the pulmonary lesions are very small and localised, they may remain completely unnoticed, and often it is only after death from another cause, that a small focus of circumscribed interstitial pneumonia, or small gummata are discovered localised in some part of the lung. *b.* In other cases, local functional disturbance and physical signs may characterise the case, with an absence of all apparent constitutional effect. Some patients present pulmonary syphilitic lesions, with little cough, scanty expectoration, and slight dyspnœa, while the presence of some circumscribed induration, or even a small cavity may be detected in their lung. However, their general conditions remain apparently satisfactory: they are "healthful phthisical people," according to M. Bazin's expression. *c.* But, more often, intense constitutional phenomena are connected with the local symptoms, and all the signs of common phthisical cachexia may develop.

Prognosis. Unless its course be accelerated by the coexistence of other visceral lesions, syphilitic phthisis is much more chronic than tubercle. The prognosis may be rendered unfavourable by two different causes, viz.: *a.* The mistake of the physician, who does not recognise the specific nature of the affection; *b.* The mistake of the patient, who is deceived by the apparent benignity of his disease; in consequence of which he does not apply for treatment until the lesions are too far gone.

Diagnosis. Whenever we meet with a tubercular case, even in the absence of specific manifestations, we should not neglect to examine the patient and to investigate his antecedents, so as to ascertain whether he be syphilitic or not. Some of the local differences between tubercular and syphilitic lung have been already referred to. None of the local signs, however, can constitute a sufficient base for a diagnosis to be grounded upon. With regard to the general signs, suspicion should always be awakened by marked disproportion between the local symptoms and the constitutional disturbance. Again, it should be well remembered that the tubercular facies, with congested patches on the cheeks and especially on the malar region, deformed nails and phalangeal tips, and the diminution of the superior thoracic diameter are absent in syphilitic phthisis. Lastly, tubercle, according to statistics, is hereditary seven times out of ten; whilst, of course, in cases of syphilitic lung, the family history will not be so often tubercular. Some suspicion may also be excited on the morbid process itself. This generally is slower in syphilis than in tubercle. Too often, however, the diagnosis remains almost impossible, and in cases of combined syphilis and tubercle, it may be utterly so.

Treatment. The treatment of syphilitic lung is that of the tertiary stage of syphilis. Thus, iodide of potassium internally should be prescribed in increasing doses of ʒss., ʒj., and ʒiss. per day. At the same time, mercurial frictions should be practised, but the internal use of mercury is to be avoided lest it produce gastro-intestinal disturbance. This specific treatment should be resorted to not only in well established cases of syphilis, but even in doubtful cases. The local treatment should consist of repeated extemporaneous blisters, dry cupping, and iodine painting; while general tonic medication should be instituted, with the use of iron, cinchona, cod oil, mineral waters, and hydrotherapy.

Therapeutic Results. If the lesions are pretty recent, and the constitutional symptoms not more developed than they usually are in the median period of tubercle, there will be more than hope, there will be almost a certainty of cure. Thus, even after a few days of specific treatment, the functional symptoms improve; the cough and expectoration diminish; dyspnœa disappears; the appetite comes back; and the digestive functions regain their healthy condition. After a few weeks, all functional disturbance has yielded to the treatment; but, although the physical signs may at this time have also disappeared, these most often persist for a much longer time. If, on the contrary, the specific treatment is resorted to too late, and if the nutritive functions are too much impaired, therapeutics may often be found powerless. Nevertheless, there are on record cases of complete recovery having occurred in debilitated and almost already cachectic subjects who presented cavernous sounds—*i.e.*, cavernous blowing and gurgling. Such instances fully confirm the exactitude of this aphorism of M. Ricord's—viz., that "impossibilities are at times possible in syphilis."—("Gaz. Hebd.," No. xlviii. et seq., 1875.)

Surgery.

M. Ch. Fauvel has divided into two parts his volume "Traité Pratique des Maladies du Larynx," 1876. The first part treats of the history of laryngoscopy, the description of the various apparatus which are employed for laryngeal exploration, the different methods of proceeding to this exploration, the detailed description of the laryngoscopic image, and, lastly, the account of the divers instruments which are used in laryngeal surgery. The second part is subdivided into two sections—the first of which treats of laryngeal polypi, and the second, of carcinomatous affections.

Laryngeal Polypi.—These affections are very common, especially in France. But their presence is very often overlooked in consequence of their seat and of various other circumstances. Thus, to discover a polypus seated, under the epiglottis, in the anterior angle formed by the junction of the inferior vocal cords, we should carefully turn up the epiglottis and throw full light upon the whole length of the inferior vocal cords, including their anterior insertion into the angle of the thyroid cartilage. Thus, also, when a pedunculated polypus is attached near the ventricular edge of the inferior vocal cords, or even when its insertion lies in the ventriculum itself, the tumour, especially if the patient makes a deep inspiration, may easily escape into Morgagni's infundibulum, from which it is very difficult to get it out. In such an occurrence, the patient should be directed to cough, so as to disengage the polypus. Again, when a pedunculated polypus is attached either to the free edge of one of the inferior vocal cords or to the angle which they form by their junction, the tumour may slip down and adhere to the inferior surface of the vocal cords. Again, when a polypus is attached to the inferior surface of either inferior vocal cord, it is only occasionally and during energetic respiratory movements that it can be perceived between the free edges of the vocal cords. M. Fauvel defines laryngeal polypi as tumours which vary in their form, colour, consistency, structure, and volume, which may either present one peduncle or more, or be sessile, and which are developed at the expense of the anatomical constituents of the larynx, and especially of its mucous membrane. M. Fauvel does not comprehend in the term polypus the tumours which are connected with tubercular, syphilitic, or cancerous disease.

MM. Cornil and Ranvier divide laryngeal polypi as follows, according to their microscopical characters:—*a.* Papillomata. These are by far the most common kind. They are nothing else but normal papillæ—*i.e.*, connective-tissue, blood-vessels, and epithelium, which have become hypertrophied. Their exterior aspect is pinkish-white and granular; they may be either pedunculated or sessile. They resemble small cauliflowers or grapes. *b.* Myxomata. In frequency, these are next to the preceding. They are almost always single and pedunculated. Their colour is about the same as that of the laryngeal mucous membrane. They are constituted of blood-vessels; of mucous tissue which presents large and pale cells, either fusiform or anastomotic; of free cells which are small and round; and often also of elastic fibre and adipose cells. They are invested by a papillary layer. *c.* Epitheliomata present pretty nearly the same exterior aspect as myxomata. But their peduncle is seldom fully developed. Their structure consists of anastomotic cylinders of tesselated epithelium, which are surrounded with a stroma, the nature of which may vary. *d.* Fibromata. Out of three hundred cases of laryngeal polypus, M. Fauvel has met with eleven instances of fibromata. These were constituted of interlaced fibrous fasciculi and of plasmatic cells. Their colour was whitish, almost nacreous, and hardly distinguishable from that of the subjacent vocal cords. Generally, they had no peduncle. *e.* Angiomata. Of these, M. Fauvel has seen two cases, in both of which the tumour was smooth and reddish-brown. Angiomata are formed by dilated and anastomotic capillaries, which are filled with blood. *f.* Sarcomata. M. Fauvel saw the encephaloid variety twice; three times he met with the fasciculated; and three times, also, with the papillary form. *g.* Cysts. These are easily diagnosed by their special transparency.

Laryngeal Polypi, according to their seat, may be termed:—*a.* Supra-glottic. These are not at all common, since, out of three hundred cases of laryngeal polypus, M. Fauvel found the insertion of the tumour to the inferior face of the epiglottis, five times; to the superior vocal cords, three times; to the intra-arytenoid mucous membrane, only twice. *b.* Intra-glottic—*i.e.*, developed in Morgagni's ventricula, or on the superior face, the free edges, or the anterior insertion of the inferior vocal cords. M. Fauvel, out of three hundred cases of laryngeal polypus, has met with 62 instances in which the tumour was attached to the anterior angle formed by the junction of the inferior vocal cords; 212 in which it was attached to the free edge, and 31 on a level with the superior face of these cords; whilst, in 7 cases, it was attached on a level with the ventricular margin. Seven times out of 300, the insertion was found in the ventricula; 124 times to the anterior third of the length of the vocal cords; 115 times to their median; and 10 times to their posterior third. 145 times the insertion of the tumour was on the right side, and 130 times on the left side. *c.* Sub-glottic—*i.e.*, attached to the inferior face of the inferior vocal cords or to the mucous membrane which lines the internal surface of the cricoid cartilage and of the beginning of the trachea. This division contains only 9 cases out of 300.

Age. Causit reported 10 congenital cases of laryngeal polypus out of 44. M. Fauvel's practice shows that the disease increases in frequency with advancing age. Its frequency also is much greater in men than in women. Thus, we find 231 male against 69 female cases. Professions which expose to congestion and permanent irritation of the laryngeal mucous membrane predispose to the formation of polypi, whilst the influence of heredity, temperament or diathesis, seems to be nil. Laryngeal papillomata, however, appear to develop more frequently in herpetic and lymphatic subjects who present cutaneous warts. Out of three hundred cases, the following numbers show the frequency as regards the structure of the tumour:—Papillomata, 206; myxomata, 53; epitheliomata, 11; fibromata, 14; angiomata, 2; sarcomata, 7; cysts, 3.

Symptoms. Phonation: M. Fauvel has constantly found, when the inferior vocal cords were the seat of the polypus, that the voice was more or less altered. This alteration develops gradually and increases simultaneously with the volume of the tumour. If this become pedunculated and slip down into the trachea, the patient may suddenly recover the integrity of his voice, so that he might imagine himself cured did not temporary alteration recur now and then after coughing, as this action brings up the polypus between the vocal cords. Another cause of intermittent alteration is the erection caused in spongy angiomata by accidental congestion. When the tumour is attached to the inferior face of the inferior vocal cords, the voice is generally hoarse, but complete aphonia is never observed. If its insertion is epiglottic, although the alteration of the voice may be intense, more usually it is little marked. Again, when the polypus has grown either from the superior vocal cords, or from the ventricular walls, the alteration of the voice-sounds varies in degree from slight roughness to total extinction.

Respiration. Dyspnœa is seldom produced by those polypi which are attached either to the ventricular walls, the superior vocal cords, the arytenoid cartilages, or the epiglottis. But if a supra-glottic tumour slips down through the glottis, rapid asphyxia may supervene. Respiration is more rapidly interfered with by those polypi which develop on the inferior vocal cords than by any others. On the whole, the presence of dyspnœa is not at all diagnostic between polypi and other laryngeal affections; but the rapidity with which this symptom ingravesces is a good sign of the rapid development of the morbid product. Cough is rare in cases of laryngeal polypus. M. Fauvel noticed its presence in six cases only out of three hundred. But, when a pedunculated tumour hangs down the trachea, the patient can, by abrupt expiration, throw it up, so as to produce a peculiar valvular sound which might be well called an "explosive bruit" (bruit d'explosion).

Pain. Local pain is extremely rare, and, when it is present, it most likely depends upon some irritative inflammation which has been developed in the neighbouring parts. You can, in fact, pinch a laryngeal polypus without producing any pain. If, therefore, you cause the patient any pain, it is a sign that you have seized with your forceps some portion of healthy tissue. Many patients, however, suffer from a constricted feeling behind the sternum. This sensation appears to be independent both of the volume and of the seat of the tumour. It is possibly caused by some mucous irritation from the presence of mucous products, the expulsion of which is impeded by the polypus. Again, seventy patients of M. Fauvel's complained of a very disagreeable peppery taste, which developed tiresome ptyalism.

Deglutition is very exceptionally interfered with. When this happens, it is especially in swallowing liquids. The auscultation of the larynx does not afford very definite signs, with the exception of the already mentioned "explosive bruit." This indicates the presence either of a pedunculated tumour, or of flabby false membranes. Of course, the expectoration of fragments of polypus would be pathognomonic.

Diagnosis. The tumours which are most easily mistaken for laryngeal polypi and *vice versâ*, are either syphilitic or tubercular. Syphilitic vegetations, although they are seldom seen on the inferior vocal cords, may develop upon any part of the larynx. Generally, they co-exist with buccal or pharyngeal lesions. It may, however, be a difficult point to decide whether these growths are specific or papillomatous. In that case, treatment with mercury and iodide of potassium will soon settle the question. Tubercle always ulcerates and suppurates before attaining considerable dimensions. Its invariable seat is the posterior portion of the inferior vocal cords, near their arytenoid insertion. In a doubtful case, tubercle should be searched for in other parts of the body, and especially the lungs.

Prognosis. With the exception of sarcomata, the prognosis, in cases of laryngeal polypi, is generally favourable. The development of most of them is very slow. Sarcomata, however, and sometimes also papillomata and epitheliomata, may develop very rapidly. Besides, considering their marked tendency to spread and to be reproduced after they have been removed, the prognosis of a case of any of these three sorts of tumours is very serious. In fact, sarcomata almost always end fatally, and the German authors admit that certain papillomata may in time become sarcomatous. M. Fauvel has met with two cases which appear to support this view.

Treatment. M. Fauvel condemns absolutely that mode of treatment which consists in destroying laryngeal polypi through an artificial passage. If asphyxia threatens rapid death, tracheotomy should be performed in order to afford the necessary time for further treatment through the natural passage. The mode of treatment per vias naturales includes different methods. These consist either in the plucking and crushing, excision and incision cauterisation, or galvano-cauterisation of the tumour. The method by excision and incision is generally adopted in Germany; but, when the tumour is very vascular, this method may give rise to considerable hæmorrhage, which causes troublesome fits of cough. Moreover, the detached polypus often falls down into the trachea. The Germans pretend that this accident is of no consequence, but such is not M. Fauvel's opinion. The method by cauterisation when the tumour is large too often fails to be recommendable. Again, although the galvano-caustic method has been successfully used by Voltolini, considering that our instruments are very defective, and, consequently, that the quantity of electricity which they produce cannot be exactly measured, this method should not be resorted to when another can be relied upon. It might be proper, however, to use it in treating either carcinomata or certain tumours, the section or plucking of which might be followed by abundant hæmorrhage.

From his own statistics, M. Fauvel concludes that the best method of operating upon laryngeal polypi consists in the plucking and crushing of the tumour by means of his special forceps. This method, in fact, is always sufficient; it is little painful, if it be at all so, and it does not produce hæmorrhage. By using it, M. Fauvel has never met with any accident.

Local Anæsthesia. M. Fauvel blames the German practice, which consists in obtaining local anæsthesia by the immediate application of chloroform to the larynx, with the object of favouring the absorption of a morphic solution which is subsequently applied to the parts. This method besides being extremely painful, may produce acute œdema and even phlegmon. The sucking of ice during the hour which precedes the operation, and the use of strongly astringent gargles, or of a gargle composed of a concentrated solution of bromide of potassium, are the best means of producing local anæsthesia. Three hundred cases of laryngeal polypus from M. Fauvel's own practice are reported.

Carcinomata. Under this head, M. Fauvel describes two varieties of cancerous tumours—viz., encephaloid and cancroid. At the onset, a carcinomatous affection of the larynx resembles any catarrhal chronic inflammation, either tubercular, strumous, syphilitic, or what not. But, in a more advanced stage, it presents a dark brown and more or less circumscribed tumefaction of a portion of the laryngeal mucous membrane, which, as the disease makes further progress, becomes ulcerated and covered with proud flesh and vegetations. The morbid products subsequently invade the neighbouring parts, and cause œdema and hæmorrhage. The beginning of the affection takes place abruptly in the absence of any well-determined cause, and while the patient appears to enjoy perfect health. Cancer of the larynx is scarcely ever observed under 40 years of age. M. Fauvel has met with thirty-four cases of this affection in men, and with only three in women. If no treatment be made, the disease will run its course in an average space of from two to three years. Whilst, if tracheotomy is resorted to, life may be prolonged about nine months beyond the average duration of the disease.

The symptoms evolve in the following order:—dysphonia, dyspnœa, orthopnœa, suffocation, characteristic roaring respiration, profuse ptyalism, enlargement of the cervical lymphatic glands, dysphagia, laryngorrhagia, general wasting, cachexy, marasmus, and sometimes sudden death. Whether it be encephaloid or epithelial, laryngeal cancer is always primary—*i.e.*, it never develops subsequently to the presence of a cancerous tumour in some distant part. Often, however, carcinomata which have started from some neighbouring part, may extend to the larynx. Nevertheless, laryngeal cancer has never been observed to generalise, but the rule is that it evolves on the spot and does not develop cancerous products at a distance. This, in fact, does not happen even in those patients whose life has been prolonged by tracheotomy. Out of 37 cases of primary laryngeal cancer, M. Fauvel's statistics contain 19 instances of encephaloid, 16 of epithelial, and 2 doubtful cases.

At the onset, the encephaloid form cannot be distinguished from the epithelial. Both forms consist at first of an ill-circumscribed tumour, which is invested with a bluish-red and smooth mucous membrane. But this tumour, if it be encephaloid, will rapidly develop; its colour will become whitish-pink, its surface rough, mamillated, and ecchymotic. The shape of the tumour thus developed is fungiform, and its mass tends to produce complete obstruction of the larynx. As the tumour grows, its surface becomes ulcerated, especially on the posterior side by the contact of the aliments, which rub against it on their way to the œsophagus. The ulcer is irregular, with an indurated and prominent margin, and it becomes the occasion of more or less abundant hæmorrhage. When the disease has entered its last period, the cartilages are found inflamed, sphacelated, or even entirely destroyed. The epithelial form does not progress so rapidly as the encephaloid. The tumour is large, uneven, and very much like a papilloma. As it enlarges, its surface becomes covered with small papillary vegetations. The morbid parts soon ulcerate and appear grey, often bleeding, and covered with permanent mucous and pus. As the ulcer becomes deeper and deeper, hard œdema supervenes, and at length the cartilages may be invaded by the destructive process. Then abscess may be formed, which opens at the anterior region of the neck, the muscles of which may, in the course of time, undergo fatty degeneration. The submaxillary and cervical lymphatic glands are always found enlarged and indurated. So are also the peritracheal and peribronchial glands, the tumefaction of which may produce dyspnœa in the absence of all laryngeal œdema.

Seat. Out of thirty-seven cases, twenty-six times cancer started from the left side of the larynx, Out of these twenty-six cases the superior vocal cord was sixteen times the seat of the initial lesion. Five times out of seven cases in which the lesion began on the right side, the starting point was on the superior vocal cord. This was, therefore, primarily attacked in twenty-one cases out of thirty-seven. The presence of the numerous lymphatic glands which exist on the superior vocal cords accounts well for the greater frequency of cancer in that part. Lastly, out of thirty-seven cases, the original lesion was only once on the epiglottis. Laryngeal polypus is a far more common affection than cancer, since, during the course of fifteen years, M. Fauvel met with 343 cases of polypus and with only thirty-seven cases of carcinoma. No well-determined cause, not even heredity, can be assigned for the formation of laryngeal cancer. Out of thirty-seven cases, cancer existed in the family of only two of the patients. Any cause which may produce local irritation, and also damp and cold climates and the neighbourhood of the sea, predispose to laryngeal cancer.

Symptoms. Phonation: The voice, which at first becomes hoarse, may, as the lesion extends, become completely extinct. However, if a great effort be made, some rough sounds will probably be produced and heard at a certain distance; whilst this was never possible to those patients in whom M. Fauvel found laryngeal tubercle. Again, in cancerous cases, the cough almost always remains sonorous instead of being "soufflée," as in tubercle.

Respiration. Dyspnœa is rather a late effect of laryngeal cancer, so that this sign may appear for the first time even twelve months after the alteration of the voice. Then the respiration becomes harsh, grating, and roaring. Intermittent fits of suffocation occur and recur, especially at night when the patient is lying. These fits soon become more and more frequent, and unless sudden death supervenes on a fatal paroxysm, the patient gradually sinks and dies of slow asphyxia.

Dysphagia. This symptom, which is initial when either the œsophagus or the epiglottis is the part first affected, is rare in the first stage of primary laryngeal cancer; but it is most common in the second, and constant in the third stage. It does not supervene until the arytenoid cartilage has become the seat of some morbid alteration. When deglutition begins to be interfered with, death may be expected within a short time.

Pain. Even before attaining its ulcerative period, laryngeal cancer generally occasions pain, which is at first local, but which, in a more advanced stage, radiates towards the ears, orbits, and forehead. When the lesion propagates to the œsophagus, progressive dysphagia increases the pain and *vice versâ,* so that these two phenomena react on each other.

Ptyalism. This is a constant symptom which appears at the same time as ulceration, and which may become excessive and most exhausting, especially when dysphagia prevents the patient from swallowing his saliva. Again, from the moment that ulceration begins, the breath becomes fetid. Hæmorrhage also does not appear until ulceration sets in. After which it increases with the progress of the lesion, and it may be considered a diagnostic sign.

Enlarged Glands. The enlargement and induration of the lymphatic glands supervene at the same time as the ulceration of the cancer. The submaxillary glands are the first invaded, and subsequently the cervical. Enlarged glands are completely indolent, and however great their tumefaction, they seem never to ulcerate.

Constitutional Disturbance. Cancer of the larynx appears to occur more especially in robust subjects, and the patients do not begin to emaciate until they enter the ulcerative stage, and even then the progress of emaciation is not very rapid till excessive dysphagia prevents all ingestion of food.

Diagnosis. Here, M. Fauvel insists upon the necessity of frequently practising auscultation of the chest according to the precept of Barth and Roger. Before ulceration occurs in the cancerous tumour, it may be distinguished from various other laryngeal affections as follows:—In hypertrophic laryngitis, the laryngeal mucous membrane is more or less bright red, but it is not dark brown as in cancer. Again, in laryngitis, pain is absent. Polypi generally develop on the inferior vocal cords, which are exceptionally (one case out of thirty-seven) the primary seat of cancer. Papillary vegetations are distinguished by their tendency to multiply and spread on all parts of the larynx. Again, in such cases the voice is lost, but dysphagia, pain, and hæmorrhage are not observed. Gummata are very rare indeed in the larynx. They might be known by the effect which a mercurial and iodic treatment would produce. Ulcerated laryngeal cancer may be diagnosed by means of the following remarks:—Syphilitic ulcerations are frequently seen on the epiglottis. Nevertheless, they may sometimes be so difficult to distinguish from ulcerated cancer that, in doubtful cases, a specific treatment must always be prescribed at first. Tubercular ulcerations are accompanied with characteristic decoloration of the whole of the larynx with palish œdema and caries, and necrosis of the cartilages, especially of the arytenoid. Again, they occur indifferently in both sexes and in young and old people. Lastly, the auscultation of the lungs might decide the question. Strumous ulcerations are very uncommon. They sometimes are accompanied with other scrofulous manifestations, and they occur in subjects who have not yet attained the age at which cancer generally develops.

Prognosis. Whilst out of 300 cases of polypus, 280 of which he operated on, M. Fauvel obtained 180 definitive cures and 48 cases of amelioration, and whilst he met with only 5 unsuccessful cases, the same author saw all laryngeal cancers terminate fatally. Thus, 7 patients who were affected with encephaloid cancer and who were not tracheotomised, died after having been ill during about three years. Eight patients who were the subjects of the same affection, but on whom tracheotomy had been performed, gave about three years and nine months as the average duration of the disease. In the case of epithelial cancer, six patients who were not tracheotomised lived about twenty-three months from the beginning of the cancerous affection, whilst seven who had been tracheotomised gave an average of four years. Those patients who were operated on lived therefore in case of encephaloid nine months, and, in case of epithelioma twenty-five months, longer than those who were not tracheotomised. Hence, in case of cancer of the larynx, life is always prolonged by tracheotomy. Nevertheless, until now no treatment, no operation whatever, not even the total removal of the larynx can be considered curative. Death results either from cachexia, asphyxia, or starvation. M. Fauvel observed seven cases of sudden death, which, in his opinion, might be attributed to the accumulation of mucous in the trachea and in the pulmonary alveoli.

Treatment. At the outset, and in doubtful cases, antisyphilitic treatment should be instituted. When ulceration occurs, mercurial frictions should be used after Sigmund's method, and green iodide of mercury should be prescribed in doses of from gr. ¾ to gr. jss. per day. Hypodermic injections of corrosive sublimate might, in some cases, be resorted to. At the same time as mercury is taken, iodide of potassium should be given in doses of from ʒ ss. ʒjss per day. If all this fail the diagnosis will be no longer uncertain, and all that can be done is to relieve pain by opium, chloral, prussic acid, and hemlock, and by hypodermic injections of hydrochlorate of morphia. Ptyalism should be treated by similar injections, and by the application to the laryngeal ulcers of a solution of morphia or of bromide of potassium. The pain also might be relieved by applying to the ulcerated parts a weak solution of nitrate of silver or of tincture of iodine. The fetor requires the use of inhalation of carbolic acid, or of chlorate, or permanganate of potass. Lastly, in case of dysphagia, the patient should be fed exclusively with mucilaginous or even fluid food. Perhaps the only curative means which might possibly be tried would be the complete destruction of the cancer by energetic, and, if necessary, repeated cauterization through an artificial opening. This mode of treatment enabled M. Fauvel to prolong during several years the existence of a patient on whom he had performed tracheotomy. A palliative method of treatment would consist in removing as much as possible of the cancerous mass. In order to avoid hæmorrhage, a good plan would be to combine the use of the galvano-cautery with the plucking of the tumour by first cauterizing it, and, a few days after, removing with the forceps every morbid fragment not strongly adherent. But, after all, tracheotomy is certainly the best palliative remedy. By facilitating the respiration, and by allowing the larynx to take absolute rest, this operation may for a while stop the progress of the disease. Of course the opening should be made as low as possible, lest cancerous growths extend to the margin of the wound, and thus expel the canula. As a last resource, M. Fauvel would not hesitate to follow the example of Billroth and Langenbeck in practising the total removal of the larynx.

The last part of M. Fauvel's work contains the report of personal observations, viz., thirty-seven cases of primary cancer of the larynx; three mixed cases, in which the tumour was astride of the larynx and pharynx; four instances of secondary cancer, which had extended from the neighbouring parts to the larynx; and five cases of various laryngeal affections.

Asphyxia during Thoracenthesis.—In a case of pleurisy of slow form, M. Tenneson resorted to capillary puncture and suction in a woman, who was supposed to be tubercular. While the liquid was still running out, sudden asphyxia supervened, threatening death. M. Tenneson attributes the supervention of asphyxia to pulmonary congestion, due to the sudden afflux of blood into the lung, to fill up the vacuum produced by tapping. In order to obviate the production of pulmonary congestion, M. Tenneson proposes not to make any suction. He recommends also the use of a cock, for regulating the issue of the liquid. Should the patient not feel relieved by the extraction of the liquid, but, on the contrary, if dyspnœa should supervene, the issue of the effusion must be stopped by shutting the cock, or even by removing the canula. Should dyspnœa increase, threatening asphyxia, ventilate the room freely, without losing any time; then, place the patient in the position most favourable to the respiratory movements; stimulate the reflex action of the nervous centres by means of peripheric excitation; administer alcoholic draughts; and, if all these fail, then, resort to free blood-letting.—("Union Méd.," February 22, 1876.)

MATERIA MEDICA AND THERAPEUTICS.

Monobromide of Camphor.—It results from M. Bourneville's experiments on frogs, guinea-pigs, rabbits and cats, to which monobromide of camphor was administered hypodermically, that—*a.* The number of heart-beats is diminished. *b.* The inspiratory movements are diminished in frequency, but they remain unaltered in their rhythm. *c.* The temperature is regularly lowered, and, in fatal cases, it goes on diminishing until death. Thus, in cats, the temperature fell from + 102·2° Fahr. as low as + 71·6° Fahr. When the animal recovered this fall of temperature was followed by a rise which reached the initial or normal degree; but this rise took place in a much longer time than that which the fall had required. *d.* The sedative effect is well marked. *e.* The digestive functions are not disturbed, although the prolonged use of the drug causes rapid emaciation; at least this has been observed in cats and guinea-pigs. The monobromide of camphor has been tried, especially in cardiac affections from nervous causes, and in asthma.—("Comptes-Rendus de l'Acad. des Sc.," August, 1875.)

Hydrobromate of Cicutin (by M. Mourrut).—The use of hemlock has met with discredit because its preparations are not definite, keep badly, and consequently are of very uncertain activity. M. Mourrut has succeeded in preparing a salt of cicutin, the hydrobromate, the composition of which is definite and invariable. The mode of preparation is as follows:—Treat the cicutin by a solution of hydric bromide; (it is advisable to add the acid solution drop by drop, in order to prevent the evolution of cicutin vapours). The mixture should be kept in incessant motion; blue litmus paper should previously be placed in the alkaline solution; and the addition of the acid should be stopped as soon as the litmus begins to redden. At the same time the liquid, which was yellow, becomes pink. Then evaporate to crystallize the salt; evaporation may be favoured by heating gently. The odour of cicutin disappears; prismatic needles are thus obtained, very soluble in water and in alcohol, less readily so in ether and in chloroform; such crystals have little taste, and are not deliquescent; they are odourless, but, when ground between the fingers or in a mortar, they evolve a strong odour of cicutin. According as pure and white, or impure and brown alkaloid has been used for their preparation, the crystals are colourless or red. Colourless crystals, by exposure to the air, turn red without decomposing; if kept in the dark they remain white. They melt at the temperature of + 180° Fahr.; At a higher temperature they are volatilized, and evolve the odour of cicutin. Numerous experiments, performed on animals by M. Mourrut, showed him that the effect is identical for the same dose of colourless or of coloured salt, whether the coloration is primarily due to the use of brown cicutin or is secondarily acquired by exposure to the air. M. Saison gave to a three years old child, affected with hooping cough, gr. $\frac{75}{1000}$ of hydrobromate of cicutin every hour; and the patient slept all night without coughing. M. Landur prescribed it with satisfactory results in hooping cough, asthma, and cough in phthisical subjects, in doses of gr. $\frac{3}{100}$, for twelve months old children, and of gr. $\frac{15}{100}$ for adults. These doses may be repeated every hour. M. Regnault injected gr. $\frac{45}{1000}$ to a phthisical woman of twenty-three years of age, and who was affected with intercostal neuralgia; the pain yielded to the treatment.—("Bull. Gén. de Thérap.," May 30, 1876.)

Digitalis in Pneumonia (by M. Limousin).—Digitalis may be prescribed in every stage of pneumonia, and it generally produces the following effects :—At first the bloody expectoration is modified ; soon after, the pain in the side disappears or diminishes ; even in twenty-four hours the pulse and respiration become less frequent, and the temperature falls about half a degree Fahr. During this time the stethoscopic signs remain stationary. If the treatment be completely successful, in about seventy-two hours the frequency of the pulse will be diminished by from twenty to thirty pulsations, the temperature will fall from two to three degrees Fahr., and the resolution of the pulmonary inflammation will be rapidly effected. In those cases in which digitalis does not succeed, sulphate of quinia may often give satisfactory results. In pneumonia, after the administration of digitalis, the pulse, before its frequency begins to diminish, is thready, and it may be suspended by the least pressure ; whilst, when the diminution of frequency is taking place, the pulse is jerking, but easily compressible, and each pulsation is followed by the immediate collapse of the artery. In fact, except for the difference of volume, the pulse is very much like that of aortic regurgitation. Digitalis never modifies the pulse without influencing also the temperature, so that it is strictly accurate to say that a diminution of twenty pulsations corresponds with a fall of 1·8° Fahr. This action of digitalis upon the pulse and temperature evidently depends upon its influence upon the organism, since the improvement persists from five to eight days after the suspension of the drug. Digitalis, however, may sometimes diminish the frequency of the pulse without modifying that of the respiration ; nevertheless, in those instances in which the respiration remained frequent, although the pulse had become slower by the use of digitalis, M. Limousin did not notice that the final result was less satisfactory. Lastly, in acute affections, digitalis does not seem to improve the febrile condition of the urine, which persists in being scanty, red and sedimentary.—("Union Méd.," No. cxxiv., 1875.)

Digitalis in Rheumatic Fever.—M. Bourgeois recommends the use of strong doses of digitalis at the very onset of rheumatic fever. This treatment often succeeds in arresting the development of the attack.—("Journ. de Méd. et de Chir. Prat.," Tom. xlvii., 1876.)

Eucalyptus Globulus in Pulmonary Gangrene.—M. Bucquoy, in five cases which ended in recovery, obtained much benefit from the use of eucalyptus. He prescribed the tincture in doses of half a drachm, diluted. If depression was great this was alternated with some alcoholic mixture, containing from half a drachm to one drachm of extract of cinchona. More than any other disinfectant, eucalyptus improves the odour of the breath and quiets the violence of the cough. Even in fatal cases it has been found useful.—("Union Méd.," 1876.)

Koumiss.—M. Bertet recommends the use of koumiss in cases of dyspepsia in phthisical subjects.—("Union Méd.," No. cliii., 1875.)

Treatment of Angina Pectoris (by M. G. Sée).—Treatment of the paroxysm—hypodermic injection, containing morphiæ hydrochloratis, gr. 0.15; aquæ, ℳ. x., to be repeated twice, or even three times in the same day. In order to prevent the recurrence of the paroxysms, M. G. Sée prescribes daily two injections as above, for a few days. During the paroxysm, and immediately after the hypodermic injection, the following enema should be administered:—chloral hydratis, from gr. xxx. to gr. xlv.; aquæ, fl. oz. v. Chloroform, nitrite of amyl, belladonna, and all the anti-spasmodic remedies are of no value against angina pectoris, with the exception, however, of ammonic acetate, which substance is one of the most energetic cardiac stimulants, and which also greatly facilitates respiration.

Prophylaxis: dry cupping, hot applications, blisters, and Mayor's hammer are insufficient to prevent the paroxysms from recurring. Electricity is dangerous, and should never be resorted to in cases of angina pectoris; but chloroform, as a topical application, may be found beneficial. On the whole, the best medication, between the paroxysms, consists in prescribing bromide of potassium and digitalis, so as to regulate the circulation.—("Gaz. des Hôp.," No. xxx., 1876.)

Treatment of Nervous Palpitations.—M. Lardier noticed that nervous palpitations, provided they are idiopathic, are almost instantaneously relieved by posture, by bending down the head, arms and trunk so as to cause the venous blood to stagnate in the upper parts of the body. The effect is accelerated by holding the breath at the same time. The palpitations are thus arrested, perhaps because the stagnation of the venous blood diminishes the supply of arterial blood to the cardio-medullar nerves. These nerves are sympathetic twigs, issued from the spinal cord with the third branch of the superior cervical ganglion. M. V. Bezold demonstrated that the stimulation of these nerves accelerates the action of the heart. But the relief may also be due to a beginning of asphyxia, carbonic acid gas being well known to diminish the rapidity and intensity of the cardiac action.—("Union Méd.," August 21, 1875.)

Transfusion of Blood (by M. Oré).—From the historical study of the transfusion of blood, M. Oré concludes that—*a.* An animal which has been rendered bloodless by abundant hæmorrhage, may be restored to life by practising the transfusion of blood, either mediate or immediate. M. Oré employed constantly the former method, which he considers the safer, especially for operations on animals. *b.* It is absolutely required, when mediate transfusion is resorted to by means of a syringe, that the instrument should be self-filling and self-emptying, like M. Oré's own apparatus. *c.* Blood which has remained during twenty-four hours (Blundell) out of its vessels is unfit to be transfused, unless it is defibrinated, which Blundell did not mention. *d.* Venous blood, obtained from dogs, cats, hens, ducks, &c., if it be received into a vase the temperature of which is pretty nearly the same as that of the body, will begin to coagulate as soon as it escapes from the blood-vessel; it therefore becomes unfit to be transfused, lest it produce death by the introduction of clots. The contact of the blood with the air seems to be one of the agents of coagulation. *e.* It is quite certain that cold, instead of accelerating it, delays the coagulation of venous blood; therefore, it is a mistake to attempt to maintain the blood at the normal temperature of the body by heating the receiver and apparatus for the performance of transfusion. *f.* Venous blood, after it has been cooled by its contact with a receiver which is surrounded with a mixture composed of ice and salt, may be injected into the blood-vessels of an animal, without producing syncope or any other accident. *g.* Cold venous blood is as proper as that contained in the blood-vessels to revivify animals on the point of dying from hæmorrhage. *h.* Blood from animals of a certain species may be harmlessly and even beneficially transfused to animals of another species, provided both species belong to the same class of animals. *i.* When transfusion is performed between animals belonging to different species, various hæmorrhages, such as hæmaturia, and a special morbid alteration of the kidneys may frequently, but not constantly be observed. But these phenomena do not depend upon the nature of the injected blood; they are the consequence of the rapidity with which too large a quantity of liquid is injected. *j.* When the doses are well suited to the weight of the animal into which they are injected, *i.e.* when they do not exceed the twentieth part of the whole mass of its blood, the production of these accidents is most often avoided; or, if they take place, they will be but of short duration, and they never will produce any constitutional disturbance. *k.* Hence, M. Oré considers it sufficiently proved that the blood of one kind of animal may experimentally be replaced by that of another kind, and that the action of the latter blood will be identical with that of the former. *l.* If, however, both animals do not belong to the same class, for instance, mammalia and birds, blood may also be harmlessly transfused from one to the other, provided it is as perfectly liquid when it enters the vessels of the one animal as it was when it escaped from those of the other. *m.* Hence, Dieffenbach and Bischoff are wrong in attributing to a deleterious and toxic action of the fibrin, the death which sometimes supervenes, and which is referable to the rapidity with which the blood coagulates and to the introduction into the blood-vessels of small clots which produce embolism. *n.* The contact of the blood with the walls of the blood-vessels (Glénard) is one of the chief causes which retard coagulation

This idea may be applied to the transfusion of blood between animals of different species. *o*. Bull's blood could be maintained fluid, and then be, without any danger, injected into dogs, after having been kept as long as twenty-five hours in a segment of the jugular vein. Medical practice confirms these conclusions, for out of 155 cases either of pellagra, lypemania, or pulmonary phthisis, in which blood was transfused to men from rams, he-goats, sheep, calves, or lambs, cure was obtained in 64 cases, and improvement in 21. In 43 cases, no change was produced; in 1 case, the result was doubtful, and death occurred in 26 cases.

Out of 381 cases in which human blood was transfused to human subjects, we find 183 cases of cure; 15 of improvement; 5 without results; and 168 which ended by death. These 381 cases of transfusion may be distributed under the seven following heads:—*a*. 117 cases of uterine hæmorrhage, out of which are 77 successful cases and 40 failures. Therefore, transfusion of blood is one of our most powerful means of remedying uncontrollable hæmorrhage connected with gestation or parturition. *b*. Fifty cases of traumatism—viz., 23 cases of cure; 25 of failure; and 2 of improvement. To these 50 surgical cases may be added, 11 of pyæma, in which transfusion neither prevented nor even retarded death. *c*. Out of 62 cases of anæmia, cure was obtained in 33 cases; improvement in 4; and in 25 cases death could not be prevented. These 62 cases may be divided as follows:—Essential anæmia, 31 cases, out of which are 18 cases of cure; 2 of temporary improvement, and 11 of failure. Anæmia from repeated hæmorrhage, 12 cases, out of which are 8 cases of cure; 1 of improvement; and 3 failures. Anæmia from prolonged suppuration, 19 cases, out of which are 7 cases of cure; 1 of temporary improvement; and 11 failures. Out of 9 cases of leucæmia, in which tranfusion was resorted to, 3 were successful, and 3 useless. *d*. Transfusion produced cure in 3 and failed in 12 cases of carcinoma. It produced cure in 1 case of phthisis, caused improvement in 2, and failed in 10. Out of 4 cases of insanity, transfusion cured twice and improved twice. *e*. Out of 7 cases of typhoid fever, which were treated by transfusion, 2 ended in recovery, and 5 were fatal. One case of dysentery was cured by transfusion, but it failed in 3 others. In 18 cases of cholera, transfusion failed, but it succeeded in 3. *f*. Nine cases of poisoning by carbonic oxide were cured by transfusion, whilst it failed in 6. In 1 case of phosphorus poisoning it was successful, but was powerless in 2 cases of telluric poisoning, in 1 of glanders, 1 of syphilis, and 1 of hydrophobia. *g*. Lastly, 3 cases of paludean cachexia, 4 of scurvy, and 1 of puerperal convulsions were cured by transfusion, whilst it failed in 3 cases of diphtheria, 3 of uræmia, 2 of burn, and 1 of scarlet fever. For small pox, the results were 1 cure and 4 failures; for mental affections, 3 failures and 1 case doubtful; for epilepsy, 1 cure and 2 failures; for hysteria, 2 cures, 1 failure, and 2 cases improved; for asphyxia in new-born children, 1 success and 4 failures; for gangrene, case cured, and 1 improved.

Penetration of Air into the Veins.—M. Oré concludes from his experiments that:—*a.* Air may penetrate into the veins and circulate without great constitutional disturbance, provided its quantity is not too large. *b.* The instruments which are used for transfusion do not endanger the admission of a greater amount of air into the blood than can be tolerated; hence, this accident is not to be feared, unless the operation is made on the external jugular vein. Even in this case the admission of air is more likely to occur during the opening of the vessel than from defect in the instrument used for transfusion. *c.* The external jugular vein should never be selected when another vessel can be opened. *d.* In the presence of the accidents produced by penetration of air, treatment by electric currents, applied without any delay, is indicated. Transfusion may be effected either with complete blood or with blood which has been deprived of its fibrine. Both methods are good, but statistics give, for the latter, 24 cures out of 76 cases, and for the former, 95 cures out of 174 cases (J. Casse). It is therefore preferable to use complete blood, provided a metallic sieve is placed at the opening through which the blood comes out. Numerous experiments, which consisted in transfusing blood-serum into bloodless animals, proved, by their failure, that the beneficial effect of transfusion is entirely due to the action of the blood-corpuscles. How do these corpuscles operate? Perhaps by rousing the heart through nervous stimulation; perhaps transfusion is effectual by inciting the blood-corpuscles to multiply. Nothing is yet demonstrated on this point.

Various Methods of Transfusion.—These methods may be classified in two great divisions:—*a.* Mediate, or indirect, transfusion, by which the blood, before being injected, is received into a vase, in which it is exposed to the air. *b.* Immediate, or direct, transfusion, in which the operation is conducted without exposure to the air. This method includes different varieties, according as venous or arterial blood is injected into a vein or into an artery, and also according as the blood proceeds from an animal or from a human subject. M. Roussel called "electrified transfusion" the method which consists in directing an electric current through the apparatus. The same author called "infusory transfusion" the immediate transfusion of a definite mixture of blood with water, either pure or medicated. Lastly, M. A. Guérin gave the name of "community of the blood" to the method which consists in establishing direct communication between the artery of the person who affords the blood and that of the recipient. M. Oré does not believe that M. A. Guérin's method will ever be adopted. In preference to all the other methods M. Oré recommends the transfusion of venous blood into a vein. Considering the rapidity with which the blood coagulates, the mediate method is preferable when experiments are made on animals; but in men, since coagulation does not begin before the fourth minute from the moment that the blood has been extracted, immediate transfusion should be preferred.

Injection of Blood into the Sub-cutaneous Connective Tissue.—Although this proceeding is absolutely condemned by M. Roussel, M. Oré does not wish to decide until new experiments throw more light upon the question. The use of the blood of animals is strongly advocated by M. Oré, provided venous blood is injected into a vein; in fact, he is inclined to attribute to the mixture of the two kinds of blood the disturbing symptoms which often follow the injection of arterial blood into a vein. Generally these disturbing symptoms, viz., cyanosis, intense dyspnœa, excruciating lumbar pain, soon disappear spontaneously. M. Oré never met with such phenomena when he injected venous blood into the vein of an animal, even though obtained from an animal of another species. The quantities of blood which have been injected by the different operators, vary from fl. oz. j. to fl. oz. xxii. The precept that blood can be injected as long as no respiratory disturbance occurs is often dangerous, because bad effects may develop subsequently. Thus M. Oré observed a case in which the patient died from pulmonary œdema, consecutive to the injection of fl. oz. iijss. of blood, which at first had produced apparent improvement. We should therefore conclude, with M. Béhier, that only small quantities must be injected: repeating them, if the case should require it.

Accidents Connected with the Operation.—Careful management and the use of proper instruments suffice to prevent the admission into the veins of air, clots, and foreign bodies. Mydriasis, vomiting, abdominal pain, and anal tenesmus should be avoided by operating when the patient is fasting and after the bowels have been evacuated. Of course, these phenomena are indications for suspending the operation, which may be resumed after their cessation. Dyspnœa, when it occurs during the operation, is a sign that too large a quantity has been injected.

Sequels of the Operation.—Rigor is the first phenomenon which follows transfusion. This takes place from twenty to thirty minutes after the operation. J. Casse considers it a constant phenomenon. His assertion is correct with regard to animals, but M. Roussel ascertained its absence in man in 9 cases out of 31. It seems that the duration and intensity of rigor is in proportion to the quantity of blood injected. Thus, rigor would be nil for fl. oz. v., slight for fl. oz. vj., and intense for fl. oz. viij. M. Roussel, however, does not think that it is possible to affirm that the quantity of blood injected is the only cause of the production, duration, and intensity of rigor. The temperature of the patient oscillates; it increases during the first minutes which follow the operation, and afterwards the normal degree is reproduced. M. Roussel found that the temperature of the anus and vagina was always from one to two degrees Fahr. higher than that of the skin. The pulse, which at first is accelerated, presents variations which depend upon the manner in which the operation is conducted. Finally, the pulse tends to regain strength and to resume its normal type. Transfusion is almost always followed by perspiration and subsequent sleep. Do not these three stages of rigor, heat, and sweat constitute a real fit of traumatic fever? Renal secretion is increased, but its normal limpidness and coloration persist, unless the blood has been injected in too large a quantity. If such is the case, the urine first voided after the operation may be bloody, which M. Oré saw in one case, and it may happen when the blood of an animal is used; but such an accident is exceptional. Of course, it is the consequence of plethora. When hæmaturia is observed, it is preceded by lumbar pain, which also may sometimes be present, although no blood appears in urine. Lastly, cephalalgia is a common sequel of transfusion. This phenomenon may, in some cases, last during two or even three days, but it usually ceases much sooner.—("Etudes sur la transfusion du sang," 2 de Edit., 1876.)

Thoracentesis. — M. L. Lereboulet says that the fatal cases in which thoracentesis has been performed, should not contra-indicate this mode of treatment. It may be advisable to examine previously the conditions of the heart and large vessels so as to foresee the possibility of syncope. But the presence of pericarditis or grave cardiac lesions should never prevent the performance of the operation if the abundance and nature of the effusion require it. Syncope may result from the pain produced by puncture, from an emotion, or from some other accidental cause. Nothing proves that the expected supervention of syncope, when this accident can be foreseen, should be a contra-indication to tapping. The patient must always be lying horizontally while the operation is performed, and the operator should always be ready to suspend the flow of the liquid as soon as syncope threatens to supervene. Pulmonary congestion and consecutive asphyxial symptoms can most often be obviated by tapping early, by preventing the abrupt escape of the effusion, and by suspending it. Reybard's trocar does not favour pulmonary congestion more than any other apparatus.—("Gazette Hebd.," 1876.)]

On some Accidents Consecutive to Operations on the Pleura (by M. Desnos).—*a.* Syncope. Although fatal cases of syncope may exceptionally occur after tapping, as in the instance reported by M. Besnier, they are not an argument against this mode of treatment, but they indicate that we should not let the patient become exhausted by fatal delay. Syncope should be obviated by operating while the patient is lying horizontally. But he should sit up if any symptom of pulmonary congestion and asphyxia supervene. *b.* Pulmonary congestion. By regulating the flow of the liquid, we can obviate the tendency to pulmonary congestion. Raybard's trocar favours this complication more than other instruments. When pulmonary congestion sets in, we should treat it by prescribing emetics, especially ipecacuanha, by sinapising and dry cupping the chest and limbs freely, even by resorting to general bloodletting, if circumstances allow it. *c.* Convulsions. As stated by M. Raynaud, the highly reflex convulsions, which sometimes follow the use of therapeutic injections into the pleura, depend upon the retraction of the cystic walls, as the empyema tends towards recovery; such injections should always be prescribed with extreme caution, and they may even be entirely contra-indicated when the cavity has been reduced to small dimensions. *d.* Embolism. Since bulbar or cerebral embolism results from clots developed in the vessels of a long compressed lung, this accident can be avoided by early puncture. *e.* Paralysis. Paralytic phenomena, such as those described by M. Lépine, appear to result from some local irritation. They should be prevented by careful management. At present they must be considered exceptional.—("Gazette Méd. de Paris," 1876.)

CLIMATOLOGY.

Effects of High Altitudes.—M. Jourdanet says ("La Vie de l'Homme et la Pression de l'Air"):—*a.* The climate of moderately high mountains is bracing, because the mean quantity of carbonic acid gas in the blood is diminished. *b.* High altitudes, of about two thousand metres, have a reverse effect, because the feeble pressure of the air diminishes the quantity of oxygen in the blood by lessening the affinity between this gas and the blood corpuscles. These conclusions, M. Jourdanet communicated to the Academy of Medicine, in the year 1863. But since, in 1868, the experiments of M. P. Bert, on animals, confirmed their exactitude by demonstrating that the quantity of oxygen in the blood is in direct proportion to the atmospheric pressure. Magnus had already found that the blood corpuscles give up their oxygen only when the atmospheric pressure is almost nil. Repeating Magnus's experiments M. Bert ascertained that at a pressure nearly nil, the blood corpuscles can absorb a quantity of oxygen even greater than that which they hold under normal barometric conditions, provided the blood is kept in a state of motion, which the power of the heart is unable to produce. Magnus's experiments, therefore, fail to disprove this law, viz., that in living animals, the quantity of oxygen contained in the blood is in direct proportion to the barometric pressure. M. Bert stated, that animals die when, the barometer marking 76, the density of the oxygen is only 0·04 of its normal density; they die also when, the barometer marking 76, the density of the carbonic acid gas is only from 0·26 to 0·28 of its normal density. M. Cl. Bernard had already established this fact, that animals exposed to an over-oxygenised atmosphere, are asphyxiated by the carbonic acid gas resulting from their own respiration. M. Bert proved that, although it is easy to extract gases from the blood by diminishing the atmospheric pressure, it is almost impossible to over-saturate the blood by forcing gases into it; the resistance to absorbing a greater quantity than the normal average being nearly insuperable. Pure oxygen, the barometric pressure being of four atmospheres, would produce, in animals, accidents similar to those resulting from virulent poisons. The atmospheric air itself, if its pressure is equal to twenty atmospheres, will have the same effect, owing to its oxygen being at the same density as though it were pure and had a pressure equal to four atmospheres; the internal temperature of animals, under such conditions, being below the normal standard. In animals placed under a pressure of eight atmospheres, paraplegia and even death supervened when the normal pressure was rapidly restored. M. Bert, in examining after death the blood of these animals, found abundance of free nitrogen and a small quantity of carbonic acid gas. This great amount of nitrogen explains the cause of death, having first been dissolved by the blood from the effect of exaggerated pressure, and subsequently freed by the rapid diminution of pressure; death is caused by this nitrogen stopping the smaller arteries. In the inhabitants of the high mountains in Mexico, M. Jourdanet found the blood poor in oxygen, the circulation accelerated, and the internal temperature diminished; whilst M. Cointet's experiments showed that, in high regions, the quantity of carbonic acid gas expired is diminished. Moreover, M. Jourdanet found the average quantity of the liquid part of the blood diminished from excessive evaporation, owing to the dryness and low density of the air in those regions. Thus local stagnation, threatening gangrene of the feet, often compels their inhabitants to go down into the valley, where the dampness and higher density rarely fail to produce rapid recovery. From his observations, M. Jourdanet concludes that, although pneumonia is pretty common and usually presents a marked gravity in high regions:—*a.* Generally speaking, phthisis is rare in Mexico. *b.* It is almost unknown amongst the people of the better classes. *c.* The progress of phthisis, when this disease has been acquired elsewhere, is much retarded by the sojourn in high regions, and even cure may sometimes be obtained through the mere influence of altitude. *d.* When the

the predisposition to phthisis has been acquired elsewhere, this affection, as a rule, fails to develop in high regions. M. Jourdanet remarks that phthisis, being exactly the reverse of chlorosis, either of these affections can be cured by the supervention of the other. In anæmic people, the combustion of the nitrogenous elements of the body is much diminished, whilst it is always increased in phthisical subjects. The analysis of the air expired by anæmic patients shows almost accurate equality between the quantity of the carbonic acid gas produced and that of the oxygen consumed. On the contrary, in phthisical cases the difference between the amount of the carbonic acid gas generated, and that of oxygen employed, is often very marked. From these facts it appears to result that phthisical subjects employ part of the oxygen inspired in burning their own nitrogenous constituent; whilst the anæmic inhabitants of high mountains burn scarcely anything more than carbon. From which M. Jourdanet infers that a rarefied atmosphere is favourable to tubercular patients, by affording just enough oxygen to burn away the carbon, and not a sufficient quantity to consume any of their own nitrogenous substance. Hence the treatment of tubercle, consisting in placing the patients in a large ward, well ventilated by a current of air deprived of two-thirds of its oxygen. —("Revue Scientifique.")

Cauterets (by M. Sénac-Lagrange).—The Cauterets water is well known; it is particularly prescribed for phthisical patients, and for those who are affected with chronic affections of the respiratory organs. But there are several contra-indications to it, and M. Sénac-Lagrange agrees with M. Pidoux on this point, that the use of mineral water is not contra-indicated by the erethism, nervous irritability, or neuropathic conditions of the patients, but by their "tubercular vulnerability"—*i.e.*, the readiness with which their tissues produce tubercle. Unless the body can afford a certain amount of sound constituents and unless the treatment is well borne, the use of sulphurous water is irrational; and sulphurous medication is sure to fail when all general stimulant or tonic remedies are either badly borne or powerless. It is also a mistake to prescribe it in the presence of either remittent or intermittent fever, or of cough which is easily followed by vomiting. Again, the persistency of diarrhœa is a formal contra-indication. The rule is not quite so absolute with regard to fever when this is distinct from tubercular hectic. The good state of the digestive function is most favourable, and arthritic or herpetic antecedents are undoubtedly the best indications for the Cauterets water. —("Journ. de Méd. et de Chir. Prat.," Tome xlvi., 1875.)

Davos-Platz, a Winter Station (by M. Vacher).—Phthisical patients are often recommended the Davos station, the altitude of which is 1,550 metres. During all the medical season, the ground is covered with from one to two metres of snow. The average temperature is

+ 40·67° Fahr., and a temperature of — 13° Fahr. may be observed. As a compensation, the air is remarkably pure and dry, and the action of the sun is powerful. Of course, the patients should only go out in fair weather, which is habitual at Davos. When the weather is bad, or before sunrise, they should keep themselves warm in the interior of the cottages, which are well heated, and have double doors and windows. Such is the dryness of the atmosphere that the pressure is only of 627 millimetres. The patients are directed to perform some inspiratory exercises in this dry and little oxygenated air. They also follow a hydrotherapeutic treatment, and their alimentation is tonic and respiratory, so that they generally get stouter. The season is over in spring, when the climate becomes damp and unfavourable. Phthisical subjects who present ulcers of the larynx or of the trachea, and who consequently must not breathe dry air, should by no means be sent to Davos or to any of the Alpine stations. M. Vacher believes that Mont-Dore would be well fitted for a winter establishment like Davos. The dryness of its air, the uniformity of its temperature, and its position, which is screened against the south wind, render Mont-Dore remarkably suited for such a purpose.—("Journ. de Méd. et de Chir. Prat." Tome xlvi., 1875.)

Mont-Dore.—M. Lassalas ("Etudes sur la Phthisie-Pulmonaire au point de vue du traitement) recommends the Mont-Dore water at the beginning of tubercular disease. This water, by preventing pulmonary congestion, might arrest the imminent development of tubercle; whilst, by stimulating the peripheric capillaries, it tonifies the skin and renders it less sensible to atmospheric vicissitudes. One season spent at Mont-Dore may often suffice to cure predisposition to bronchitis. Not only does the Mont-Dore water not produce hæmoptysis, but it prevents it; whilst the patients who present some tendency to blood-spitting should not take the Eaux-Bonnes or other sulphurous waters. Although it quiets the circulation, the Mont-Dore water is far from being depressing; on the contrary, it stimulates and improves the digestive and nutritive functions; but it is contra-indicated in affections either of the heart or of the large vessels, and whenever there is any tendency to cerebral hæmorrhage or softening. Again, patients who are either debilitated, or continuously feverish, should not go to Mont-Dore.—("Journ. de Méd. et de Chir. Prat.," Tome xlvi., 1875.)

Mogadore (by M. Ollive).—The Mogadore climate is mild, very even and constantly moist. The highest temperature, in the year 1874, was observed to be + 77° Fahr.; and the lowest, in the year 1875, was + 55° Fahr.; its average temperature, in summer, is about + 70° Fahr.; and in winter, it is about + 62° Fahr.; thus, the difference between its summer and winter temperature is about 8° Fahr. Its barometric condition may, during a month, oscillate within the limits of from six to fourteen millimetres; its hygrometric tension may vary from 82·85 to 83·96.—("Gaz. Méd. de Paris," Feb. 12, 1876.)

Humourous Journal of a Phthisical Physician. (By Dr. X.)—The author admits of two forms of phthisis, viz., a torpid and an erethitic form; the torpid form is more common in cold climates, and affects chiefly lymphatic and strumous subjects. The erethitic form is more especially connected with arthritic and nervous conditions, and is more frequent amongst the members of the Latin races. Dry and warm stations, like Menton, Nice and Amélie-les-bains, are indicated in the torpid form; whilst warm and damp places, such as Pau, Dax, Algiers and Madeira, are preferable in the erethitic. The torpid form requires exclusively tonic treatment, whilst the erethitic must be treated by anodyne and antiphlogistic remedies. Pau, especially, should be chosen in cases of nervous hyperæsthesia, but it is unfavourable to arthritic subjects; the difference of its temperature, between the sun and shade, is about 54° Fahr. Dax is likely to become the chief winter station; its average temperature oscillates between + 46° Fahr. and + 48° Fahr.; its hygrometric condition averages from eighty to ninety degrees. Dax is remarkable for its moist atmosphere, to which it owes the sedative properties of its climate; the difference of temperature between the sun and shade is not so marked at Dax as it is at Pau. — ("Gaz. Hebd.," April 21, 1876.)

MISCELLANEOUS.

Effects of Muscarin and Atropia upon the Heart.—M. A. Alison experimented with the filtrated juice or the extract of the amanita muscaria, or with muscarin, in mammalia, birds, batrachians and reptiles; and he obtained these results:—*a.* Glandular hypersecretion in mammalia and birds; evident signs of asphyxia, especially in birds, and marked disturbance of calorification. *b.* In frogs, very small doses of muscarin accelerate the cardiac action; whilst larger doses determine the arrest of the heart in a state of diastole. The contractions are re-established by a dose of atropia. Again, the arrest of the heart cannot be produced in animals previously atropinized. Other substances, such as digitalin, calabarin, nicotin, ergotin and hyoscyamin, or agents such as air, light and peripheric stimulation, appear to act like atropia. But the influence of this last substance is the most powerful, for it can rouse the cardiac contractions, even after a ligature has been placed on the heart previously paralyzed by muscarin; and even after the heart has been paralyzed during twenty-four hours in frogs (even in winter), and when all other means fail. The antidote operates either by exciting the sympathetic twigs, or by paralyzing the branches of the vagi, or in both of these ways. Other species of amanita, namely, the amanita mappa, although they produce similar effects, do not arrest the heart in permanent diastole, as does the amanita muscaria. In mammalia, such as men, dogs, rabbits, &c., small doses accelerate the cardiac beats. Larger doses produce, at first, acceleration and, subsequently, progressive diminution, which ceases by the use of atropia. Arterial tension falls rapidly under the influence of muscarin, and is at once raised again by atropia. The paralysis in a diastolic state depends most likely upon the over-stimulation of the cardiac twigs of the vagi, combined with diminished activity of the sympathetic nerves, which, however, are not paralyzed at the moment that the arrest is produced. Lastly, the beats of the lymphatic hearts in frogs, are not stopped by muscarin (Prévost); and they are not influenced by atropia. *c.* In mammalia, birds, frogs, and lizards, small doses increase temporarily the frequency of respiration; the normal type of which is subsequently re-established. Moderate doses produce at first some increase in frequency followed by diminution. Toxic doses cause progressive decrease and even permanent arrest. The previous section of the vagi does not modify these results. But atropia annihilates the effects of muscarin. According to Schniedeberg and Koppe, the respiratory movements cease before the cardiac contractions. This assertion is correct with regard to mammalia; but, in batrachians, the reverse is the case. *d.* Small doses produce some elevation of temperature; but this result is not constant, and does not, as a rule, take place until from two to three hours after administration of the drug. Moderate doses, in the first moment, cause the temperature to fall from two to four degrees Fahr., and subsequently the normal standard is regained. Toxic doses produce great diminution of heat before death. The temperature is raised by atropia. From these propositions, it results that there is remarkable antagonism between muscarin and atropia. The latter substance might, therefore, be prescribed as an antidote for muscarin.—("Comptes-Rendus de l'Acad. des Sc." No. xii., 1876.)

Aerophore of M. Denayrouse.—This apparatus is destined to protect the life of workmen in irrespirable atmospheres. It consists of:—*a.* A receiver composed of three metallic cylinders, which contain atmospheric air, under a pressure of from twenty-five to thirty atmospheres. This receiver is filled by means of a pump of a special construction, and it has two regulators, the one for the entry and the other for the exit of the air; the latter is automatic, so that the air which enters the mouth is under a very feeble pressure, which varies according to the quantity that has been consumed. *b.* A gutta-percha tube, conveying the air from the receiver into the mouth, in which this tube ends by a gutta-percha appendage, called the "mouth shutter." This consists of a plate perforated in the centre, and which is to be placed between the lips and the gums, on which it fits accurately. *c.* A "respirateur à anches," destined to allow the regular function of respiration; it consists of a double-valved apparatus, composed of single tubes, ending in two thin gutta-percha plates, stuck only on their margin. This is placed in a sheath or small box, communicating with the air-conductor tube; thus, during inspiration, the valve placed towards the receiver yields readily to the suction and opens, allowing the required quantity of air to escape; whilst the other valve is closed, preventing all communication with the exterior vitiated atmosphere. Contrariwise, during expiration the former valve is shut by the pressure from the mouth, and the latter opens, giving an issue to the air expired. The whole apparatus can be carried on the shoulders without interfering at all with the free movements of the limbs. A mask with glass spectacles set in it, screens the eyes from irritating gases; this mask covers only the superior half of the face; it is lined with gutta-percha, so that air can be insufflated between the mask and its lining, thus maintaining this accurately applied to the face, and preventing all irritant dusts or gases from injuring the eyes. Moreover, if required, a tube can be so disposed as to convey air from the receiver to the wick of a safety lamp, thus enabling this to burn on in inert gases and even in water. M. Denayrouse has also ingeniously improved the diving bell by the addition of an acoustic tube, through which the diver can converse with the men remaining in the boat.—("Rev. Scient.," Jan. 8, 1876.)

Bronchial Concretion (by M. Burdel).—The patient who is the subject of this communication presented symptoms of marsh fever, which resisted every treatment, and went on steadily increasing, until they suddenly and permanently disappeared, after expulsion of a bronchial concretion during a violent fit of coughing. The concretion was 11 millimetres long, cylindrical, uneven, and of the size of a goose-quill. One of its extremities was slightly bifurcated, following the shape of the bronchi. M. Burdel supposed it to be the remains of some blood deposit, because the patient had had hæmoptysis twenty-two years before. The analysis of the concretion confirmed this view, by showing it to be mostly constituted of blood elements.—("Acad. de Méd.," April 25, 1876.)

UNITED KINGDOM OF GREAT BRITAIN AND IRELAND.

Report by R. Wharry, M.B., Etc., Assistant Editor; David Finlay, B.A., M.D., Etc., Physician to the Royal Hospital for Diseases of the Chest, and W. Bruce Clarke, M.A., Oxon., etc.

Anatomy and Physiology.

The Action of the Internal Inter-Costal Muscles.—Professor Rutherford applied to the ribs themselves (not to parallel bars as Hamberger did) elastic bands, in the position of the external, and afterwards of the internal inter-costal muscles; the position of these muscles having been first carefully ascertained by dissection. The ribs were elevated by the bands when placed in the position of the external muscles, but when the bands were changed to the position of the internal intercostal the ribs were again elevated.

The second, third and fourth ribs, not being connected with one another, can be raised individually; but when a band is placed between the fourth and fifth ribs, owing to the connection between the cartilages, the four succeeding ribs are also raised. When the elastic bands were attached to the osseous parts of the seven upper ribs, in the position of the internal inter-costals, there was marked elevation and consequent expansion of that side of the thorax.

If the elastic band is placed between, for instance, only the second and third rib, or between the third and fourth, the upper rib is depressed while the lower one is elevated, both when the bands are in the position of the external inter-costals and when they are in the position of the internal inter-costals, and if the lower rib is fixed the lower one is still drawn down.

Both intercostals are able to elevate the ribs and to depress them, according to the position of the more fixed point. The first point is the most fixed, as its cartilage has no joint with the sternum; it is least flexible, and is the arc of the smallest circle.

When the bands were applied as external intercostals to the eight upper ribs, great lateral expansion resulted; the top of the sternum was elevated $\frac{1}{4}$ inch, the ensiform cartilage was raised forward $\frac{3}{4}$ inch. —("Journal of Anatomy and Physiology," April, 1876.)

Respiration.—Dr. Patrick Black, in a monograph, discusses the causes and the immediate results of respiration. While looking upon oxidation of the blood as the ultimate object of respiration, he considers that the primary object is to enable the blood coming from the right ventricle to circulate freely through the lungs, and that it effects this by dilating the air vesicles, thus removing the mechanical obstruction to the passage of the blood through the capillaries in their walls.

Alcohol.—Dr. Lauder Brunton, in a paper read before the Medical Society, says that alcohol increases the force and frequency of the pulse by acting reflexly through the nerves of the stomach. It lessens the oxidizing power of the coloured corpuscles after absorption, and thus aids in reducing temperature. It dilates the blood-vessels and increases the force and frequency of the heart's action. In disease, alcohol frequently diminishes the rapidity of the heart's action.—("Lancet," Jan. 8, 1876.)

The Action of Jaborandi on the Heart.—Mr. J. N. Langley, B.A., St. John's Coll., Camb., considers Jaborandi to have a slowing action on the heart. In the frog, after the injection of Jaborandi, the heart becomes red and dilated, and beats more slowly; this progresses till the heart is of dark red colour, and very much distended in diastole. The auricles often first show the effects, beating only in every alternate heart-cycle. When greater effect is produced the heart becomes irregular; sometimes the auricles, and sometimes the ventricles contracting only once in every alternate heart-cycle, then, perhaps, both stopping, a few normal contractions following. The ventricles always cease to beat before the auricles. The heart-beat is quickly restored by sulphate of atropia; the auricles in this case first resume their action.

Mr. Langley finds that, contrary to the results obtained by Vulpian, Jaborandi slows the heart after the administration of urari, and therefore its action does not depend upon the stimulation of the peripheral ends of the pneumogastric inhibitory fibres of the heart. He also found that a definite electric stimulus passed to the pneumogastric of a toad, when the heart is beginning to be slowed after the injection of Jaborandi, produces a greater inhibitory effect than it does before the injection. But when the slowing effect of the Jaborandi was well marked, electrical stimulation of the pneumogastric nerve produced no effect.

Mr. Langley points out that, in the crude extracts of Jaborandi, we have (1) an alkaloid-pilocarpine, which, in small doses, paralyses the inhibitory fibres of the vagus with moderate slowing of the heart, and, in large doses, produces a complete standstill. (2.) Some substance that exalts the inhibitory function of the vagus, at the same time powerfully slowing the heart.

When the heart has been stopped by Jaborandi, atropia produces an almost normal return of the beats, but the reverse of this is only true in part, for a definite quantity of atropia prevents only a certain proportionate quantity of Jaborandi from producing its effects upon the heart. He concludes that Jaborandi acts upon the whole neuromuscular cardiac tissue.

The effects of the local application of Jaborandi to the sinus venosus tend to discredit the theory of the existence of an automatic motor centre in the sinus, and an inhibitory centre in the auricles; because it ought to arrest the whole heart when it stops the sinus, which effect it does not necessarily produce. It even argues against the existence of any localised automatic centre, for the ventricle may continue to beat when the auricles and sinus have stopped.

When the drug is introduced into the circulation, the ventricle ceases to beat before the auricles, sinus, and bulbus arteriosus. The bulbus sometimes continues to beat for a considerable period, and then assumes a rhythm independently of the sinus and auricles. The bulbus may be seen contracting even after the apex of the ventricle has been cut off; and occasionally, even after the ventricle and greater part of the auricles have been removed.

In mammalia, Jaborandi slows the heart (with or without section of the vagi), and reduces the blood-pressure, the fall in the blood-pressure being in part independent of the reduction in the frequency of the heart-beats.—("Journal of Anatomy and Physiology," Oct., 1875.)

Action of the Bark of "Erythrophleum Quinense" or Casca Bark.—Dr. T. Lauder Brunton and Mr. Walter Pye report an abstract of the results of a systematic investigation of the physiological action of this bark. The abstract states that the poisonous action of the drug increases with the higher development of the animals experimented on. On Invertebrata, fishes and frogs it has little action; on birds it produces violent vomiting with dyspnœa, loss of muscular power, and death; on cats and dogs, vomiting with irregular and convulsive muscular movements, and following on these, general paralysis and death.

When injected beneath the skin, it always produces vomiting, but never purging. When given by the mouth, purging and vomiting are always present.

The most important physiological action of the drug seems to be its power of modifying the functions of the circulatory apparatus, and secondarily, the secretion of urine. Thus under its influence, the heart pulsates more slowly, and the ventricles first become irregularly contracted, and then stop in systole, the auricles contracting for some time longer.

Moderate doses injected into the veins of cats and dogs raise the arterial blood pressure, and then slow the heart while the blood pressure still rises; in larger doses the pulse-rate is again quickened;

lastly, very large doses produce extreme slowing of the heart's action, the pulse being even as slow as three beats per minute, while the blood pressure still remains much above the normal.

In correspondence with the increased blood-pressure it is found that moderate doses increase the secretion of urine, and large doses stop it altogether. The secretion recommences when the effect of the drug wears off.

These actions of the various doses of casca on the heart and pulse-rate are attributed to a primary stimulation of the roots of the vagus, and secondary paralysis of the cardiac terminations of that nerve, while the slowing of the pulse produced by large doses is believed to be due to the direct action of the drug on the ganglionic arparatus in the heart itself.

The increased blood-pressure is due to a state of extreme contraction being induced in the systemic arterioles.

When the drug is injected into the veins of a cat, after division of the spinal cord at the second cervical vertebra, the blood pressure rises to a greater height than is attained under other conditions ; and when the vessels in a rabbit's ear have been paralyzed by the division of the cervical sympathetic, injection of casca will cause the reddened ear to become pale.—("Royal Soc. Proc.," No. 172, 1876.)

The General Action of Cundurango.—Dr. Lauder Brunton has investigated the physiological action of this drug on frogs, and considers—(1.) That it has very little effect on reflex action, producing diminution in reflex excitability. (2.) That it has no action on the blood pressure when injected into the peritoneum. (3.) Its effect on the pulse and respiration is not constant, sometimes accelerating, sometimes slowing; the results that followed injection into the jugular being partly due to the mechanical effect of small particles. (4.) It has but little influence upon the calibres of the arterioles.—("Journal of Anatomy and Physiology," April, 1876.)

The Effects of Upas Antiar on the Frog's Heart.—Dr. M. Foster, has investigated the action of antiar on the frog's heart, and comes to the following conclusion :—

The general effects are, at first a slight quickening of the rhythm with slight increase of each contraction, followed by distinct slowing, and a tendency to become irregular. The ventricular systole was much prolonged, and markedly peristaltic ; then the extent to which the lever of the cardiograph was raised was rapidly diminished, after being at first slightly increased. In the diastole the relaxation of the walls was incomplete, and, as the action of the poison continued, the relaxation became more and more incomplete, and the extent of the rhythmic contraction diminished, the beats becoming progressively smaller till they ceased, and the ventricle became pale, with some irregular blotches, and firmly contracted into a cone. This condition is one of tetanus, brought about by an extraordinary prolongation of the relaxation phase of each contraction. During a certain stage, when the movement of the lever is becoming less, the negative variation of the muscle-current is greatly increased; it is also probable that the heat given out at each contraction is increased.

As the ventricle becomes more contracted the blood is less able to enter and accumulate, distending the auricle, and thus its systole produces a large excursion of the lever.—("Journ. of Anat. and Physiol.," April, 1876.)

The Length of the Systole of the Human Heart.—Dr. Edgar Thurston, from sphygmographic tracings of the radial artery, comes to the conclusion that the length of the systole, as indicated at the radial artery, is constant for any given pulse-rate, and varies as the cube-root of the rapidity: in this agreeing with Professor Garrod.—("Journ. of Anat. and Physiol.," April, 1876.)

Broncho-Œsophageal and Pleuro-Œsophageal Muscles. — In the "Journal of Anatomy and Physiology," January, 1876, Dr. Cunningham gives a detailed account of these muscles. He made fourteen dissections, and in all but one pleuro-œsophageal muscles were present; while in ten cases broncho-œsophageal muscles were also present. The one case, in which neither set of muscles could be found, was a cripple, whose limbs had been paralysed many years, and the muscular tissue of the œsophagus was pale, and contained much connective tissue.

The pleuro-œsophageal muscle will be seen after cutting longitudinally two flaps through the posterior wall of the pericardium, and turning them aside. It consists of a thin slip about 1½ inches long, and from a quarter to half an inch broad; it rises from the left pleura, and passes across the thoracic aorta, forming the left boundary of the posterior mediastinum, and enters the left margin of the œsophagus, its fibres diverging some upwards, but most downwards to the stomach. There are sometimes two or three, and even as many as six muscular slips; when there is only one, it is situated opposite the eighth dorsal vertebra.

A deeper dissection is necessary to expose the broncho-œsophageal muscle. The left lung must be removed by cutting through the bronchus as it enters its substance, and carefully drawing forward the cut end with a hook, the muscle is then found in the cellular tissue between the air-tube and the œsophagus. There are sometimes additional muscles connecting the gullet with the walls of the posterior mediastinum.

Dr. Cunningham considers that these muscles serve to give the œsophagus fixed points upon which to contract in the process of swallowing. It is possible that they have some influence in restoring the gullet to its position after each descent of the diaphragm on inspiration.—("Lond. Med. Rec.," April, 1876.)

ETIOLOGY.

Aortic Aneurism in the Army.—Mr. F. Welch read a paper on aortic aneurism in the army before the Medico-Chirurgical Society on Nov. 23rd, 1875. The average age at which death took place was thirty-two years, and the average duration of service twelve years. The disease lasted, on an average, thirteen months. In five cases the aneurismal dilatations were multiple, four being the largest number in any single patient; in two cases there was an innominate aneurism in addition to that of the aorta. The other changes found in the bodies, indicative of a diathesis, were generally syphilitic. The statistics show that the disease is not peculiar to climate, station, or occupation, nor is it dependent on age, or any constitutional state brought about by length of service.

A tissue growth takes place in the internal and middle coats of the artery, and terminates in degeneration, which, impairing the elasticity and contractility of the walls, permits their expansion and dilatation by the intra-arterial blood-pressure. Two processes are included under the head of atheroma: one an active change (endo-arteritis), having the aneurismal sac as a sequela; the other a passive change, a mere opacity or occasional fatty degeneration of the inner surface of the vessel, followed apparently by no injurious results, occurring between eighteen and forty years of age, the period of the soldier's service. These two forms of textural change in the walls of the aorta are distinct in their cause and origin; the passive change resulting from various chronic affections which diminish the general vitality, the active change being usually associated with syphilis, occasionally with rheumatism and alcoholism.

In 34 cases of aneurism investigated, 50 per cent. had a well-marked syphilitic taint without any other diseased conditions; 14 per cent. were probably syphilitic; 5·8 per cent. had an acute rheumatic diathesis; 5·8 per cent. were excessively intemperate; 2·9 per cent. had syphilis, rheumatism, and alcoholism combined; 17·64 per cent. unknown from absence of information; 2·9 per cent. no associated conditions could be made out. A table of 117 cases of atheroma (active and passive) is given; 46·1 per cent. had well-marked syphilitic taint; 6·8 per cent. probably syphilitic; 21·3 per cent. were phthisical; 14·2 per cent. had no records; 5·9 per cent. had heart disease; 5·7 per cent. had various diseases.

Out of 56 cases of syphilis ending fatally from special lesions, 60·7 per cent. presented aortic nodulation, the greater number being of severe type, and in about $\frac{1}{3}$ of these (18 out of 56) more or less dilatation (an early stage of aneurism) existed. These cases of dilatation, with one due to rheumatism, when added to the 34 cases of aneurism given above, make up a total of 53, and of these 66 per cent. presented a well-marked syphilitic taint alone.

To view the subject from another point, 106 post morten examinations of non-syphilitic subjects were taken; in 5 cases aneurism existed (already given in the table above); in 1 case with rheumatic diathesis and intemperance, there was severe aortic disease with dilatation; in 5 or 4·7 per cent. the inner wall of the vessel was corrugated; 3 were phthisical; 1 had alcoholism; 1 had aortic valvular disease; in 29 or 27·3 per cent. it was the passive form of atheroma that existed; 15 of these were phthisical, and the rest had renal disease, dysentery, diabetes, scrofula, lupus, and cancer.

From the foregoing tables, it is clear that nodular disease of the aorta and its sequel aneurism, depend, to a very great degree, upon the effects of the syphilitic virus; also that less frequent agencies in their production are the acute rheumatic poison and alcohol. The accoutrements, pack, etc., of the soldier by more or less contracting the chest are considered to increase the tendency to dilatation of the arterial walls, when the diseased condition necessary for its production exists.—("Lancet," Nov. 27, 1875.)

Traumatic Pneumothorax.—Mr. Butlin records three cases. In the first case pneumothorax, and subsequently hydro-pneumothorax, occurred in consequence of a severe fall, but no fracture of either the ribs or sternum could be detected, the patient making a good recovery. In the second case, pneumothorax followed the passage of a heavy vehicle over the chest, no fracture could be detected, and the patient recovered. In the third case, pneumothorax occurred as the result of being crushed between two buffers of a railway carriage, and was due to the escape of a distended stomach through a rupture in the diaphragm into the pleural cavity. In the first two cases, there was an absence of emphysema, accounted for by there being no bone fractured.—("St. Bartholomew's Hospital Report," Vol. xi.)

On Infectious Forms of Pneumonia.—Mr. A. Wynter Blythe says that some years ago Dr. C. Budd related to him several cases in which pneumonia had been infectious. For instance, a farmer suffered from acute pneumonia, and was nursed by his niece; the niece became affected with the same disease and carried it to her husband. In another case an old man suffering from pneumonia reposed during the greater part of his illness on a relative's breast, and the relative was soon after attacked with pneumonia.

During the present year an intense epidemic of pneumonia has occurred in the district Mr. Blythe is connected with, and its infectious character has been very marked.

A practitioner describes the affection as a pleuro-pneumonia, beginning with rigors, severe pain in the head, back and legs, with persistent diarrhœa and great cerebral disturbance. He then goes on to relate some cases. A man was attacked with pneumonia and died in ten days. Three days later his wife was attacked. About the same time a farmer's daughter, living at a distance of about a mile, was affected, and five other cases occurred in the parish with a population of 470. In another parish a farmer became ill; a week later the servant became affected, went home and infected her sister.

In five rural districts, during the first half of the present year eleven per cent. of the deaths have been from pneumonia.

Mr. Blythe goes on to state that there are probably two common forms of pneumonia, one arising from cold, etc., the other being zymotic in character. It is generally agreed that pneumonia is a blood disease, and it is only going a step further to suppose it infectious. The frequency of pneumonia as a complication of the specific fevers, etc., does not negative the idea of a specific lung disease in which the general poison locally manifests itself in the pulmonary tissues. The author concludes by drawing attention to the fact that there is an infectious form of pleuro-pneumonia which occurs in cattle. —("Lancet." Sept. 18, 1875.)

Is Consumption Contagious?—In a communication on this subject, Dr. Gavin Milroy says that the grounds on which the belief that consumption is contagious rests are mainly the opinions and statements of M. Villemin, who without hesitation declares that tuberculosis is a specific and contagious disease. Dr. Milroy combats the positions which Villemin lays down, and cites the recorded opinions of some of the best authorities among our own physicians of the last and present centuries:—

"It has been frequently supposed by physicians," says Cullen, "that phthisis is a contagious disease, and I dare not assert that it never is such; but in many hundred instances of the disease which I have seen, there has been hardly one which to me could appear to have arisen from contagion. It is possible that in warmer climates the effects of contagion may be more discernible."

Sir James Clark holds the same opinion, but says that "the practice of sleeping in the same bed, or even in the same room with a patient in the advanced stage of consumption is highly objectionable, because the rooms of the consumptive are rendered peculiarly injurious to health by the nature of the disease," etc.

Sir Thomas Watson says—"Is phthisis contagious? No. I verily believe that it is not. A diathesis is not communicable from person to person. The disorder, I am satisfied, does not spread by contagion. Nevertheless, I should for obvious reasons dissuade the occupation of the same bed by two persons, one of whom laboured under pulmonary consumption."

Dr. C. J. B. Williams says:—"Although I concur in the opinion that we have no evidence that it is infectious like smallpox, scarlatina, or typhus, or that it depends on a specific poison, yet I think that both reason and experience indicate that a noxious influence may pass from a patient in advanced consumption to a healthy person in close communication, and may produce the same disease; just as foul gas or putrid muscle will produce tubercles in an inoculated animal.—("Med. Times and Gaz.," Nov. 27, 1875.)

Alcoholic Phthisis.—Dr. B. W. Richardson draws attention to that form of consumption due to the abuse of alcohol. The subjects of it are generally males of naturally good constitutions, and the average age is forty-eight. They have none of the facial characteristics of either consumption or drunkenness, and the symptoms may declare themselves even after an abstemious course of life has been entered upon. The disease generally commences with a sharp attack of pain in the side, followed by suppressed breathing or difficult inspiration, owing to adherent pleura, and then hæmoptysis follows, in two-thirds of the cases. There is no form of consumption so fatal, and no remedy whatever for it.—("Med. Times and Gaz.," Aug. 7, 1875.)

PATHOLOGY AND MORBID ANATOMY.

Contracted Aorta.—At a meeting of the Pathological Society, May 18th, 1875, Dr. Goodhart showed two specimens of this condition. In each there was an annular contraction at the usual spot, just beyond the subclavian. In each the symptoms were general dropsy and albuminuria. At the apex in both was a systolic bruit, and something resembling pericardial friction. The collateral circulation was carried on by large superior intercostal, internal mammary, and epigastric arteries. There was slight atheroma in the one, scarcely any in the other, but in both there was evidence of chronic endocarditis, with mitral regurgitation, and that the change in the arteries was of inflammatory origin.—("Med. Times and Gaz.," August 14, 1875.)

Valvular Disease of the Heart (partly Congenital.)—Dr. Peacock, at a meeting of the Pathological Society of London, showed a specimen of combined aortic and mitral valvular disease; the aortic due to congenital defect of the valves. There were only two semilunar segments of nearly equal size, at the aortic orifice; one was obviously the representative of two others which had either never been properly divided, or had become united after division. The edge of the united valves hung down, so as to allow of regurgitation into the ventricle, while the thickened valve must have caused obstruction. The mitral valve was also thickened and slightly contracted. The heart weighed 19¾ ounces. The subject of the disease was a child, aged 12, who had been all her life liable to cardiac symptoms, but had never had rheumatic fever. Her temperature was very low, not exceeding 95° or 96°, and she was subject to violent attacks of vomiting without obvious cause. Latterly the urine became albuminous, and she had general dropsy and ascites. Dr. Peacock remarked that he once considered such cases as examples of the effects of intra-uterine endocarditis, but he now believed they were due to arrest of development.—("Med. Times and Gaz.," Oct. 30, 1875.)

Syphilitic Heart.—Mr. Pearce Gould, at a meeting of the Pathological Society of London, Nov. 2, 1875, exhibited a specimen of syphilitic disease of the heart. It occurred in a man of forty, who had died suddenly in a public-house. The only symptoms during life were cardiac pain and dyspnœa; post mortem, there was found apoplexy of the left lung. The anterior wall of the right ventricle presented, in its entire thickness, a white appearance extending into the auricle the septum ventriculorum and the papillary muscles. An infiltration of small round cells was found between the muscular fibres; elsewhere the heart was healthy, as also the pericardium.—("Med. Times and Gaz.," Nov. 19, 1875.)

Ulcerating Endocarditis and Mitral Aneurism.—At a meeting of the Pathological Society of London, Nov. 16, 1875, Dr. Coupland showed a heart which presented these conditions. The subject of the disease had been six days under treatment, suffering from dyspnœa and other cardiac symptoms. There was a double murmur at the base, and a systolic murmur at the apex and over the back. His illness had commenced a month previously with severe præcardial pain; he had never had rheumatism. On post-mortem examination a pouch was found in the mitral valve projecting into the left auricle; its mouth admitted the little finger. The middle cusp of the aortic valve was extensively ulcerated and covered with vegetations; the left ventricle was greatly hypertrophied.—("Med. Times and Gaz.," Nov. 27, 1875.)

Hydatid Disease of the Heart.—At a meeting of the Pathological Society of London, Nov. 16, 1875, Dr. Goodhart exhibited a specimen of the above from a man who had died suddenly. Post mortem, the pericardium was found to be adherent; in the septum ventriculum and in the anterior wall of both cavities lay an old hydatid, from which pus containing hooklets escaped on removal of the pericardium; it bulged as a hard mass on the interior of the ventricle.—("Med. Times and Gaz.," Nov. 27, 1875.)

Aneurism of the Aorta.—At a meeting of the Pathological Society of London, Dec. 7, 1875, Dr. Fred. Robinson showed a specimen from a soldier, aged 46, in which an aneurism as large as a walnut projected backwards above the middle segment of the aortic valves. The subject of it had had slight syphilis thirteen years previously. With regard to the etiology of the disease in soldiers, Dr. Robinson said that there were, *par excellence*, three causes: intemperance (especially), syphilis, and the pressure of dress and accoutrements.—(" Med. Times and Gaz.," Dec. 18, 1875.)

Warty Disease of the Pulmonary and Tricuspid Valves.—Dr. Alexander Morison, at a meeting of the Pathological Society of London, Dec. 7, 1875, showed a heart in which there was extensive disease of these valves. The man from whom the specimen was taken had scarlatina at the age of six, and was known to have heart disease when eight years old. There was a harsh, grating, double murmur at the base, and a systolic murmur near the ensiform cartilage, with regurgitation into the external jugulars, and other symptoms common to cases of valvular disease. Post mortem: the pulmonary valves were found much altered and distorted by warty growths, and the tricuspid valves misshapen from the same cause. Both the right cavities were dilated and hypertrophied; the left were normal.—(" Med. Times and Gaz.," Dec. 18, 1875.)

Rupture of the Heart.—Dr. Foulis records the case of a patient who was admitted to the Glasgow Royal Infirmary in a state of coma, livid, with dilated pupils, slow, feeble pulse and cold surface, and died on the fourth day. Post mortem: the pericardium was found to contain 10 oz. of dark, partly clotted blood, part of the clot being flattened and thin. Along the left side of the ventricular septum there was a slit ½ inch long; its margins were slightly inverted and loosely cemented by fibrine; it communicated with the left ventricle. The heart was flaccid, the cavities not dilated. There was slight nodular thickening and calcification of the aortic valves; the arch of the aorta was dilated and calcified, and there were two small bulgings near the orifices of the coronary artery. The aorta had become adherent to the third dorsal vertebra.—(" Glasgow Med. Journ.," Oct., 1875.)

Cardiac Aneurism.—Dr. Wickham Legg showed, at the Pathological Society's meeting, January 4th, 1876, a specimen of aneurism of the mitral valve. There had been during life a systolic apex murmur, a double murmur developing towards the end of life. The heart was considerably enlarged, especially on the left side; the pericardium was slightly adherent; there were two bulgings on the auricular surface of the large flap of the mitral valve, near the cusp, one being as large as a split pea, the other the size of a hemp-seed, and they communicated with the cavity of the ventricle by two apertures. He also showed a specimen of aneurism of the heart in which there was thickening of the aortic and mitral valves; at the base of the left ventricle, between the two segments of the aortic valves, there was a pouch about the size of half a small marble; the walls of the pouch were thin and translucent, crossed by bands of membrane.—("Lancet," January 8, 1876.)

Dr. Coupland showed a specimen of ulcerative endocarditis, with aneurism of the mitral valve; the left side of the heart was dilated and hypertrophied, and a pouch in the anterior mitral cusp projected upwards into the auricle; there was an ulcerated hole in the ventricular surface near the attached border of the valve, leading into the aneurism, and filled with fibrine.—("Lancet," November 20, 1875.)

Embolism of the Pulmonary Artery.—Dr. Fagge showed a specimen, at the Pathological Society's meeting, November 16, 1876. The patient died in the fourth week of typhoid fever, during an attack of dyspnœa, following an attempt to get out of bed. The lungs were engorged; the heart contained gelatinous decolourised clot; the valves were healthy; lying across the pulmonary artery, at its bifurcation was a clot that seemed to consist of four distinct cords twisted together; it was, however, an elongated cylindrical clot, folded on itself; it bore no marks of the valves upon it. Dr. Fagge believed it to have come from one of the femoral veins; the fact of there having been no signs of thrombosis in the leg he explained by supposing it to have been detached soon after its formation.—("Lancet," November 24, 1875.)

Embolic Infarction.—At a meeting of the Pathological Society, Dec. 21, 1875, Dr. Goodhart showed a specimen of embolic infarction into the muscular substances of the heart. The patient, a girl, æt. 18 years, had extensive mitral disease, causing constriction. There was a large extravasation of blood into the wall of the left ventricle; no plug could be detected in any of the vessels going to it. There were also emboli in various other organs. The clot was surrounded by a bright yellow zone, as in emboli of other organs, and between the muscular fibres were large quantities of fibroid tissue; there was also capillary ecchymosis. This fibroid tissue probably was the remains of atrophied muscular fibres, resulting from the extravasation of blood. This tended to support Dr. Fagge's view regarding the infrequency with which small-celled infiltration preceded the formation of fibroid tissue in the heart. A similar condition might explain some of those cases of sudden death occurring during the process of washing out the pleural cavity.—("Lancet," Jan. 1, 1876.)

PATHOLOGY AND MORBID ANATOMY.

Pulsation in Veins.—Dr. F. Taylor, writing upon this subject in the Guy's Hospital Reports, says it is in tricuspid regurgitation that jugular pulsation is most marked. The tricuspid valve may become incompetent in two ways—endocarditis may cause rounding or thickening of its free edges, shrinking of its substance, or mutual adhesion of the cusps—so that the valve becomes too small for the orifice, or else, dilatation of the right ventricle enlarges the orifice, so that it becomes too large for the valves.

As the valves become more imperfect, first the auricle then the large veins become over extended; the valves at the root of the neck eventually become useless, and venous pulsation is established because with each contraction of the ventricle, blood is driven back through the tricuspid orifice and a movement communicated to the blood in the auricle and vena cava. If the large veins were not over full, the impulse from the tricuspid regurgitation might be exhausted in distending them.—("London Medical Record," June 23, 1876.)

Tuberculous Angina Faucium.—Dr. Gee reports a case of general tuberculosis, in which tuberculous angina faucium was present. The patient complained of his throat. The surface of the uvula was very irregular with small elevations and depressions; there was also some loss of substance. There was superficial ulceration of the left tonsil, and the back of the pharynx was covered by muco-pus. The lymphatic glands along both sterno-mastoid muscles were enlarged and hard; the ulceration progressed very slowly till death.

At the post-mortem examination, the whole pharynx was covered with puriform substance, the mucous membrane was very extensively destroyed, and the pharyngeal muscles laid bare; the uvula was destroyed; the right tonsil was destroyed, the left was hardly distinguishable. The epiglottis and aryteno-epiglottidean folds were ulcerated. The ulcerated surfaces were spotted with opaque elevations and streaks with scattered points of great vascularity. Examined microscopically, the tuberculous matter was found to occupy the wavy connective tissue beneath the epithelial coat, and which also supports the glandular acini; it presented the characters of Virchow's cellular tubercle, being composed of minute aggregated corpuscles. No giant cells could be found.—("St. Bartholomew's Hospital Reports," Vol. xi.)

Acute Tuberculosis.—Dr. H. M. Tuckwell gives a short account of eight cases of acute tuberculosis. The evidence deduced from them seems on the whole to corroborate the view that acute miliary tuberculosis depends on, and follows directly from, caseous centres in some part of the body. In two of the cases the centres of infection were apparently insignificant. In one a bronchial gland was enlarged and caseous, and a small cheesy collection the size of a pea with a thin fibrous capsule existed in the lower lobe of the left lung. In the other case there was a cheesy nodule, the size of a pea, with a thin fibrous capsule ulcerated at one spot, in the lower lobe of the left lung. The fact that miliary tubercles were thickly clustered round these spots radiating in all directions, taken together with knowledge derived from the experiments by inoculation of Villemin, Simon, Sanderson, &c., are sufficient to justify the belief that they were the centres of infection. The existence of caseous masses so often found in the body post mortem, without having given rise to acute tuberculosis, is readily explained by the changes that produce the caseation setting up slow inflammatory thickening of the surrounding tissues, thus forming a protecting capsule. Dr. Tuckwell points out the analogy between the mode of infection in acute tuberculosis and the mode of infection in pyæmia. In pyæmia the abscess which forms the centre of infection is quite harmless so long as it has a complete investment of granulation tissue, but if this becomes destroyed at any part, the infective material can pass into the blood, and give rise to the general infection. So in the caseous centre, if the fibrous capsule becomes destroyed, acute miliary tuberculosis sets in, from general infection of the blood.

In acute tuberculosis the infection spreading through the blood, the tubercles are often found at a distance from the centre, only occasionally do they spread by direct contiguity to the neighbouring tissues, and thence a gradual infection occurs of more remote parts.—(" Lancet," Dec. 11, 1875.)

Miner's Anthracosis.—Dr. W. Sneddon considers, from the circumstances under which anthracosis is usually met with, that we are warranted in concluding it to be due to the inhalation of particles of dust, usually carbonaceous. The author remarks that the Cumberland men, returning from their work, appear to be painted with ochre, caused by the dust in the mines falling on their moist skins, and some of the dust would have been inhaled. The expectoration of all miners soon becomes black; those that work in coal have darker sputum than those that work in iron, and this, notwithstanding the fact that the latter use much more gunpowder. Dr. Sneddon points out that there is much more dust thrown in the face of the man that digs coal than is the case with the ironstone worker. Miners well know that a dry pit is an unhealthy one, as it is more dusty. Although much less of the ironstone particles than of coal is inhaled (on account of its heavier specific gravity and being less pulverable), it is considered more hurtful to the lungs to work in ironstone than coal. Some say they can tell the sallow complexion of the iron stone miner from the ruddy face of the collier. Anthracosis is more common in colliers than miners. It is thus shown that the colour of the sputum is largely influenced by the minerals worked, the quantity of dust, and the method of working.

Dr. Sneddon does not accept the views of M'Kellar, Thomson, and others, that smoke is the chief cause of anthracosis.

The author suggests that miners, instead of being always confined to their small dusty corners, should occasionally help to draw their coals to the bottom of the shaft, and thus get some better and clearer air. They should also occasionally put a little water on the place they are going to dig. In the very dry pits steam jets should be introduced to moisten the air. Also that all mines should be prohibited from being worked below a certain depth. Smoke being a secondary cause, a lamp that produces less smoke should be used. Stationary lamps of greater illuminating power should be placed along the roads and in the rooms instead of each man carrying a lamp. Better ventilation should be adopted for getting rid of the smoke caused by blasting. ("Glasgow Medical Journal," Oct., 1875.)

Experimental Researches on the Pathology of Pneumonia.—Dr. J. Dreschfeld gives the following results of his experiments, which differ from those obtained by Friedländer in some important points. The vagi of some rabbits were divided, and they were killed from four to ten hours after the operation. The lungs were inflated and hardened in chromic acid and then examined. Some specimens, however, were examined in the fresh state. When killed four hours after the operation, the lungs did not collapse on removal; the lower lobes were unduly red, and a good deal of blood flowed from a section; the smaller bronchi contained a quantity of frothy mucus. Hardened specimens showed the vessels surrounding the alveoli dilated and tortuous; the alveoli completely filled with large cells, measuring ·02 to ·032 mm., finely granulated, with a dark central zone, and generally with more than one nucleus, some having as many as four. The nuclei were round, finely granular, with a well-formed central hyaline nucleolus. The alveoli also contained a few coloured blood corpuscles, a few lymphoid cells, and some pigment and granular matter. The large cells were the altered alveolar epithelium in a state of active proliferation. To compare this condition with that due to imbibition, œdematous human lungs, and lungs of rabbits injected with water immediately after death were examined. In these the alveolar cells were large and swollen, but almost hyaline, and the nucleus very indistinct and always single.

Some rabbits, after section of their vagi, died in ten to fourteen hours. The lower lobes of the lungs were red and swollen. Blood and frothy mucus flowed from a section. Hardened specimens showed the alveoli filled with swollen epithelial cells and lymphoid cells, in two varieties, viz., the ordinary lymphoid cell and a smaller less granular variety, with a transparent nucleus and hyaline nucleolus (on the addition of acetic acid). The capillaries around the alveoli were enlarged and tortuous, containing a very large proportion o leucocytes. There were numerous lymphoid cells in the interstitia tissue.

In the second series, solutions of nitrate of silver were injected int the lungs. The microscopical examination showed changes corresponding with the first series.

Dr. Dreschfeld comes to the following conclusions:—1. Division of the vagi or injection of nitrate of silver solution into the lungs of animals, produces changes similar to acute catarrhal pneumonia of man; 2. The process begins in an active proliferation of the alveolar epithelial lining; 3. There is active hyperæmia of the capillaries, the leucocytes accumulate, and eventually migrate to the alveoli; 4. The epithelium eventually undergoes fatty degeneration —("Lancet," Jan. 8, 1876.)

The Physical Cause of the Præsystolic Murmur.—Dr. Alexander Harvey after questioning the occurrence of such a murmur, says that, if it does occur, he considers that Dr. Gairdner's explanation cannot hold good.

Dr. Gairdner holds that the murmur is produced by impeded transit through the contracted mitral orifice during the forcible emptying of the blood into the ventricle by the auricle.

Dr. Harvey proceeds to explain that the auricle does not in any sense contract forcibly, and that it never empties itself. Again, at the time when the murmur is heard, the auricle is said to be empty, and the ventricle is already virtually full, so that scarcely any blood can be passing from one to the other; as a matter of fact, there is a continuous flow of blood through the auricle into the ventricle, except during the ventricular systole, which begins when its cavity is distended. It is true that, during the ventricular contraction, the auricle becomes somewhat distended, and as soon as the systole ends, the blood rushes forward through the relaxed valves, but quite independently of any action the auricles may or can exert; nor does the auricle thus become empty; it only has its distension relieved, still remaining full owing to the onward flow of blood.

The contraction of the auricle takes place when the ventricle is practically full, so that this contraction can only cause a few drops of blood to enter the ventricle. The object, therefore, of the auricular systole is not to fill the ventricle, but to add just sufficient blood to its already full cavity to excite the contraction of its walls. The auricular systole is in health inaudible, thus supporting the view that it is a comparatively slight affair.

Dr. Harvey is at a loss to understand how it is possible for a "presystolic" murmur to occur, but he conceives the possibility of a narrow mitral orifice giving rise to a murmur which would occupy the whole period of ventricular diastole; such a murmur would be post-systolic or diastolic, but not presystolic, understanding as he does a presystolic murmur to come immediately before the first sound.

The author considers too much importance has been given to the auricles as constituent parts of the heart, and for a long time has him-

[illegible] is filling [illegible] the ventricular [illegible]

[illegible] murmur. Dr. [illegible] Carter [illegible] a murmur which runs up to and [illegible] immediately preceding the [illegible] that he has repeatedly heard [illegible] any other accurate clinical observers have [illegible]

[illegible] in question occurs during the diastole, running up with [illegible] and ending with the first sound; in many cases [illegible] also, and then the former is continuous with [illegible] The presystolic murmur frequently does not occupy the [illegible] the diastole, there being a distinct interval between the second sound and the murmur; it is heard with maximum intensity at the heart's apex, or a little above and to the sternal side of this spot, and in a large proportion of cases a palpable thrill accompanies it.

In a healthy heart, during the ventricular diastole the blood is continuously flowing from the veins through the auricles to the ventricles, and at the end of the pause both the auricles and ventricles are full, but the latter are not full enough for purposes of normal circulation; at this point the auricle contracts, forcing blood into the ventricle, which contracts as soon as it has been distended to a certain point; the force of the auricular contraction is in proportion to the resistance to be overcome. Observation during life justifies the belief that the auricles discharge the greater part if not all their contents when they contract.

The præsystolic murmur coming during the pause must be due either to regurgitation of blood into the ventricles from the aorta, or else from obstruction to the flow of blood into the ventricles. Assuming that the præsystolic murmur is the result of mitral obstruction (tricuspid obstruction is excluded by its rarity), the conditions necessary for its production are forcible propulsion of blood from the auricle through the narrow orifice into the ventricle. The autopsies of cases where mitral stenosis has been found give ample proof of the blood having been forcibly propelled through the orifice.

The first effect of mitral stenosis is to produce dilatation of the auricle and of the cardiac terminations of the pulmonary veins; the second effect is to cause hypertrophy of the auricular walls; and lastly, there is increased tension in the pulmonary circulation throughout the diastole which is compensated for by hypertrophy of the right ventricle; the result is that the blood is propelled with increased force and celerity through the narrowed mitral orifice, circumstances most favourable for the production of the murmur in question.

The increased intensity of the murmur towards its termination may be explained,if we consider the necessarily increasing force exerted by the contracting auricle. The interval, between the second sound and the beginning of the direct mitral bruit, exists, because at that time neither the quantity of blood nor the force with which it is propelled is sufficient to produce an audible murmur. In recognising the præsystolic murmur some cases will present themselves, offering but little difficulty, while others require the aid of collateral circumstances. The only murmur that could be confused with an uncomplicated auricular-systolic is an aortic regurgitant. In the case of the aortic murmur there will never be found accentuation of the second sound at the second left costal cartilage; and it is almost invariably heard more distinctly at the right than at the left of the sternum opposite the third costal cartilage; the reverse is true in both instances in mitral stenosis; the secondary effects are also different; in the former case there is eccentric hypertrophy of the left ventricle, jerking pulse, throbbing carotids. Such a complication as a loud aortic regurgitant, or a loud mitral systolic murmur of similar pitch might render the diagnosis of an auricular systolic murmur impossible, but the difference in pitch and quality that usually exists between a mitral systolic and an auricular systolic murmur renders diagnosis easy.—("Lancet," August 7, 1875.)

Pyo-Pneumothorax.—Dr. de Havilland Hall records the following case of pyo-pneumothorax occurring as a sequel to abscesses following pneumonia. There were hardly any subjective signs of invasion till two days after the diagnosis had been formed by percussion and auscultation; then, however, the patient began to suffer from great dyspnœa. There was total absence of the sudden agonising pain often met with in these cases; great, but only temporary, relief followed paracentesis thoracis, the dyspnœa being as great as ever within two days.

James C—, æt. 24, a carman, a heavy drinker, was attacked with pneumonia of the right base, accompanied with much restlessness and delirium. On March 19, the eleventh day of his illness, pulse 120 very feeble; respirations 36, breathing sounds heard all over right lung. A sound like the twanging of a harp-string was heard in the right infra-axillary region. March 22, pulse 120, respirations 35; he had a very urgent attack of dyspnœa during the night; good resonance over the right front, and very feeble breathing. March 23: pulse 116, very feeble, respirations 44, panting; the right front was more prominent than the left, and moved less; very distinct metallic tinkling could be heard all over the right front, especially just outside the nipple. The heart's impulse was an inch to outer side of nipple line. He was perspiring freely. At 1·30 p.m., he was much distressed; there was a metallic splash on succussion; pulse 124. Ninety ounces of sweet pus and a considerable quantity of air were evacuated by the aspirator, affording much relief. The next day there was resonance over all the right chest, marked metallic tinkling, and a loud metallic splash on succussion. No air entered; Heart's impulse was in the nipple line. March 25: there was great dyspnœa all night. Pulse 112, irregular and very feeble, respirations 36, temperature 98·6°. Great lividity of face and coldness of hands. He died the following day.

Post-mortem twenty hours after death: A quantity of air (odourless) escaped from the right side with a rush. The right lung was completely collapsed and pushed to the upper and anterior part of thorax. There were considerable adhesions to the upper four ribs and their cartilages. The cavity contained two and a half pints of pus. The lung sank in water. A small aperture was found at the upper and back part of the lung, which communicated with an abscess as large as a walnut in the parenchyma. Four or five other abscesses, varying in size, existed in the lung-substance. No hooklets were found on microscopical examination. The pericardium was fully distended with gas.—("British Medical Journal," Sept. 18, 1875.)

Croup and Diphtheria.—A review of our present knowledge of the relation between croup and diphtheria seems to show that the present accumulated evidence points rather to pseudo-membranous croup and diphtheritic croup being identical than to their being distinct diseases; but that it is still an open question whether there is a membranous laryngitis (croup) which is distinct from diphtheria.—("British and Foreign Medico-Clinical Review," Jan., 1876.)

Malformation of the Œsophagus.—At a meeting of the Pathological Society, Nov. 16, 1875, Mr. Marsh showed (for Dr. Ilott) two specimens of malformed œsophagus. In both cases the pharyngeal end of the gullet formed a *cul-de-sac* a little below the cricoid cartilage, the remaining portion of the tube ending in the trachea at its bifurcation. In one case, a child born at the eighth month lived four days. In the other case, a child born at the ninth month died after one week, some food having found its way into the air passages.—("Lancet," Nov. 20, 1875.)

The Effect upon the Vagus of a Foreign Body in the Œsophagus (recorded by Surgeon-Major W. R. Clifton).—A patient complained that a goose-bone was sticking in his throat, and that it had been there three days. There was tenderness at a point a little below and behind the cricoid cartilage. A sharp spicula about ¼ inch long was extracted by means of a probang, giving great relief. Two days later, having still some soreness, he was admitted into hospital. After two days, severe diarrhœa set in with coldness and cyanosis of extremities and nose; the pulse was very feeble and slow, the respirations were rapid and rather laboured; there was pain in the epigastrium. The next day, obstinate vomiting set in, the epigastric pain was less, there was slight soreness on swallowing. The following morning he was bathed in a cold sweat. The bowels were constipated and distended with flatus. The ensuing day he had fixed gastric pain; he died in the evening.

Autopsy.—Lungs distended with a frothy fluid. Heart normal in structure, intensely congested, tightly contracted, right cavities gorged. Stomach intensely congested and inflamed, especially on its posterior aspect. The liver, kidneys, intestines, etc., were normal. In the œsophagus, at the level of the second tracheal ring, was a wound (which did not perforate) corresponding with the spicule that had been removed. External to, but distinct from this rent was found a needle embedded vertically in a mass of necrosed and disintegrated tissue, into which some blood had been effused. The needle was in the areolar tissue outside the right side of the œsophagus.

The author, without going into the mystery of the needle, raises the question as to whether the violent irritation that was present in the pharyngeal and other branches of the vagus could have produced through the parent trunk—

1. An inhibitory action over the force and frequency of the heart's action, evidenced by the pulse and cyanosis.

2. The laboured and rapid breathing and the pulmonary congestion.

3. The remarkable condition of the stomach, especially of its posterior aspect. (N.B. The right was the injured side of the œsophagus.) ("Army Medical Reports," 1873.)

Fracture of Costal Cartilages.—Dr. David Foulis records two cases examined post mortem. In the first case, on the left side of the chest-wall there was a depression which proved to be a united fracture of the seventh and eighth costal cartilages. The outer fragments were pushed in ½ an inch behind the inner. The eighth and ninth ribs were fractured. The cartilage substance showed no trace of calcification, but a striated silvery mottling as of fine fibrous tissue inserted in the cartilage. Between the cartilages where they overlap was a thin layer of cancellated bone, in contact directly with the cartilage on one side, while on the other a layer of matted fibrous structure (torn perichondrium) intervened. At the ends of the cartilage the perichondrium had bridged over the angular space occupied by reticulum of bone.

In the second case.—The eighth costal left cartilage was fractured near its junction with the seventh. The fracture was transverse, and the perichondrium not ruptured. There was very little displacement; and no extravasation of blood or other matter at or near the fracture.—("Glasgow Med. Journ." Oct. 1875.)

CLINICAL MEDICINE.

Thoracic Aneurism.—Dr. Frederick Robinson records a case of aneurism arising from the centre of the arch of the aorta, which illustrates amongst other points the fact noticed by Dr. Gibson that aneurism arising from this point causes less suffering than when arising from the ascending or descending part of the artery.

The patient, an intemperate man, with a history of syphilis, stated that his illness came on gradually within a month, and was not preceded by any strain or injury. Owing to the absence of distinctive signs, a mediastinal tumour was diagnosed. Within three days the patient became faint and died suddenly. Post mortem, an aneurism about the size of a small cocoa-nut was found in the anterior mediastinum undergoing spontaneous cure, it communicated with the aorta by means of a slit that would allow a sixpence to pass through. The wall was formed by adjacent tissues matted together. Another aneurismal dilatation, about the size of a filbert, was situated above and behind the aortic valves. The pericardium was full of dark bloody serum, and a small ulcerated opening, admitting a probe, communicated with the cavity of the aneurism near its junction with the aorta. The heart had a soddened appearance. There were about fourteen ounces of dark serum in the right cavity of the chest. The surface of lung adjacent to the pericardium was bloodstained on the surface.

The small opening into the pericardium seems to have given rise to a gradual oozing of the serum into its cavity which ultimately arrested life by its mechanical effect upon the heart. The fluid in the right cavity of the chest seems to have been due to a process of exosmosis, by which the pericardium was for a time relieved, as there was no evidence of inflammation, and its characters corresponded with those of the fluid in the pericardium.—("Lancet," Oct. 16, 1875.)

On Diseases of the Heart and of the Aorta, by Dr. Hayden.—In considering the cardiac cycle the author remarks that Dr. Pavy believes an ascending wave travels over the auricle immediately after, and communicated by, the systole of the ventricle; that this is promptly followed by a descending auricular wave running into the ventricle; that then the cause of ventricular diastole occurs, and afterwards the ventricular systole; and he concludes from this that Dr. Pavy is of opinion that the auricular systole in man occurs immediately after instead of immediately before the systole of the ventricles, and that no other movement of the auricle occurs, as is the case in the frog and tortoise. Dr. Hayden states that, as opposed to this view, he is of opinion that a continuous descending wave of auricular contraction occurs during the period of the ventricular diastole, and strongly insists upon the fact that a presystolic auricular contraction does occur.

Dr. Hayden describes three positive varieties of *abnormal cardiac impulse*, in addition to those of a negative character, viz.: *α*. The prolonged, diffused, heaving and double impulse, which occurs when the left ventricle is dilated and hypertrophied. *β*. The abrupt but prolonged, heaving impulse, occurring with simple hypertrophy of the left ventricle. *γ*. The abrupt hammering impulse, the result of nervous palpitation.

In considering *the causes and mechanism of misplacement of the heart,* Dr. Powell's view is rejected, viz., that the displacement is the result of traction by the unaffected lung upon the heart, when the other lung becomes collapsed from any cause, and the view that the heart is displaced by mechanical detrusion to the opposite side is adopted. Dr. Hayden performed the following experiment, with a view to satisfy himself of the validity of the objections urged against Dr. Powell's doctrine. He removed the anterior wall of the chest, except the sternum, from a dead body. A median division of the sternum from the upper to the lower extremity was made with a saw, the margins were separated by a wedge to the extent of an inch. A piece of copper wire, nine inches long, sharpened at one end, and coiled up at the other, was inserted perpendicularly into the pericardium, and fixed in the substance of the heart. The left lung was detached from its root, and the mouth of the left bronchus plugged with a cork, which was secured and rendered air-tight by means of a ligature passed round it. A string was attached to the cork, so that it could be instantaneously withdrawn. A glass tube was introduced through an incision made in the trachea, at the root of the neck, and the right lung slowly inflated. The position of the wire fixed in the heart was not in the slightest degree altered till towards the point of maximum inflation, when the margin of the lung pressed upon the pericardium. When the maximum inflation was accomplished, the free end of the wire deviated one inch to the right, and, upon allowing the lung to collapse by its elastic reaction, the wire returned to its original position. After re-inflation of the lung to its maximum degree, the cork was suddenly withdrawn from the bronchus, allowing the lung to collapse abruptly, as if by rupture of the opposite lung; the result, however, was in no degree altered, save in the rapidity of the return movement of the lever from right to left.

The conclusions to be drawn from these experiments are: 1. In the first stage of inspiratory expansion of the lung the position of the mediastinum is not affected; 2. Towards the end of expansion of the lung, the mediastinum is displaced towards the opposite side by pressure of the anterior edge and internal surface of the inflated lung; 3. At no period of inspiration is the mediastinum displaced by traction towards the expanding lung; 4. Sudden exhaustion of one lung, even at a period of maximum expansion, by rupture of the opposite lung, is incapable of producing any movement of the mediastinum towards that side, beyond the point of equilibrium.

Dr. Stokes's opinion that simple pneumothorax without fistula of the lung can cause displacement of the heart only when it is excessive, is questioned upon the following grounds:—Air in the cavity of the pleura, at the temperature of the body, must undergo considerable expansion during inspiration, and also compression during expiration; in the first case the mediastinum, being the most yielding wall of the hemithorax, is liable to be displaced by the pressure of the elastic expansion of the air, no longer neutralised by the resiliency of the lung and pulmonary pleura; while in the second case, the air compressed by the re-acting thoracic walls must be condensed, and the mediastinum on the corresponding side must sustain an equivalent pressure. These successive influences would have a continuous effect. A fistula of the lung, in order to neutralise this pressure, must, in point of size, bear the same proportion to the pleura as the bronchus does to the expanded lung; and even then a certain amount of obstruction would exist, owing to the gradual and well-adapted transition of cubic space not being present, as it is in the bronchial system. Simple pneumothorax then is, of itself, capable of producing lateral displacement of the heart. After death, however, when the air within the pleura has cooled down, the heart will, to some extent, return towards its natural position.

Dr. Hayden gives, as *the elements of the first sound of the heart*—the impulse of the ventricles; and the sudden tension of the auriculo-ventricular valves and chordæ tendineæ. The sudden raising of the sigmoid valves cannot contribute any factor, because they are raised by a pressure *ab intra*, and are not, in health, subjected to tension. The possibility of the movement of the blood over the rough surface of the ventricles being a factor is negatived, as the character of the sound is not suggestive of any such element. Muscular "susurrus" cannot be a factor, as many authorities assert, as it implies a synchronism of contraction of the fibres of the ventricles, otherwise intrinsic friction could not occur in the muscular substance, but there is no asynchronism, and, the fibres contracting simultaneously, produce no interfascicular friction.

Reduplication of the first sound is regarded as a resolution into its elements—the valvular impulse and the sound of valvular tension; and this view is based upon the character of the sounds, the first part being dull and muffled, the second being sharp and clear.

Reasoning upon the phenomenon of *reduplicated second sound*, the author concludes that dilatation of either ventricle must be accompanied by double second sound; that the later factor of the sound is produced on the same side of the heart as the dilated ventricle; that the reduplication may disappear, in consequence of improvement in the condition of the dilated ventricles, or of dilatation of the previously normal ventricle, and that it is caused by anything that produces dilatation of one ventricle.

Dr. Hayden does not agree with Dr. Warburton Begbie, in considering that accentuated aortic second sound is associated with aneurism of the arch of the aorta sufficiently often to render it in any degree diagnostic of that lesion, and he has found the co-existence of thoracic aneurism and accentuated aortic second sound rather exceptional than otherwise. When, however, atheroma and dilatation of the aorta exist, with hypertrophy of the left ventricle, but competent aortic valves, the second sound is nearly always accentuated; under these conditions the dilated aorta very readily conveys to the surface the sound of valvular tension, produced by the reflected force of the hypertrophied ventricle.

Dr. Hayden classifies *cardiac bruits* as *pre-systolic, systolic, post-systolic, diastolic, post-dyastolic* murmurs, and considers himself justified in making distinctions between the various intersonal murmurs. Prediastolic and post-diastolic murmurs he regards as occurring in connection with partial incompetence of the aortic valves.

In opposition to the observations of Dr. Kirkes regarding *chorea*, the author says that he has never seen a case in which post-mortem examination revealed "recent acute mischief," such as "thickening, swelling, and other changes in the mitral valve," much less "fibrinous depositions," in which, at least, faint murmur, or characteristic softening and prolongation of the first sound had not been present during life. It is, however, not uncommon to find it absent during the few days before death. Dr. Hayden further urges that though the presence of a cardiac murmur is no proof of organic valvular disease, the absence of a murmur throughout the patient's illness is proof of the absence of structural alteration in the valve.

Investigating the *relation between rheumatism and chorea*, the author asserts that organic lesion of the heart, valvular or pericardial, is not a usual concomitant of chorea; also that rheumatism, latent or manifest, is not an ordinary precursor of chorea. Most of his cases have occurred in girls under 13 years, who had either never had rheumatism, or had suffered from it at a very remote period, with an interval of complete health. In the majority there was no evidence of cardiac disease; in a few, there was a systolic bellows murmur at the apex, but quickly removed by treatment; the attack was almost invariably traceable to fright, emotional excitement, or intestinal worms.

From a table of 54 cases of *pericarditis*, only seven can be found to support the doctrine that simple adhesion of the pericardium is capable of producing hypertrophy of the heart; and these are not thoroughly trustworthy, because in some the urine was not tested, and kidney disease was not excluded by post-mortem examination. Dr. Hayden concludes that when hypertrophy of the heart is met with in connection with adherent pericardium the association is accidental.

Dr. Hayden does not look upon *aneurism of the aorta as a cause of hypertrophy of the heart*, upon the grounds that his observations show that aneurism of the aorta, with a co-existing normal ventricle, is more frequent than with hypertrophy or dilatation.

The Treatment of Pericarditis.—The author treats acute pericarditis in young and vigorous subjects by local depletion with leeches—ten, twenty, thirty, as the case may demand. This may even be repeated, always following the leeches with the application of a warm poultice. Strong abrupt impulse, regular rhythm, the sounds normal and sharp, and the persistence of præcordial pain or oppression, indicate a repetition of the leeching. This should be followed by $\frac{1}{2}$-grain doses of calomel, with one grain of James's, or (if there is diarrhœa) Dover's powder, every hour till slight salivation is produced. The whole treatment is commenced with a saline aperient. When the improvement has well commenced frequently-repeated moderate doses of wine are given to remove the cardiac debility and relaxation of the coronary vessels. To ensure sleep at night, 1 grain of the watery extract of opium, or liq. opii sed. (Battley's), ♏ xv. should be given. The diet should be bland and nutritious. When the acute inflammatory stage is subdued, generally sustaining measures should be adopted, with iodide of potassium and the application of a blister. If the heart becomes tumultuous and irregular digitalis is useful. When extreme effusion defies remedial agents and threatens life, paracentesis pericardii must be resorted to.

The author gives a table of 16 cases in which *paracentesis pericardii* had been performed: 13 were successful in removing the fluid from the pericardium, 3 failed owing to error in diagnosis. Death followed in 9 cases, recovery in 7; 3 operations were performed with a trocar and canula, 11 with bistoury chiefly. The pneumatic aspirator does not appear to have ever been used for this operation.

The point selected for puncturing the pericardium should be the site of maximum dulness and most distant cardiac sounds, together with the absence of the faintest approach to impulse. This will usually be at a point one or two inches to the left of the sternum in the fourth or fifth interspace. Nearer to the sternum than one inch would endanger the internal mammary artery.

A statistical table of 88 cases showed *fatty degeneration of the heart* to be most prevalent between the ages of 60 and 70, and next between 40 and 50. Out of a total of of 95 cases, 64 (more than one-half) occurred in males. In the 95 cases, 1 had intermittent pulse; 5 had irregularity of the pulse. Angina pectoris was present only in 8 cases. Slowness of the pulse is very rare, the author having only met with 1 case in his experience.

The syncopal attacks occurring in fatty disease of the heart may be divided into two sets. In one, the features are pallid and tranquil, in the other, there is lividity of the face, turgescence of the veins of the neck, and stertorous breathing. The author considers these two forms to be primarily identical, but that in the latter, which is the more aggravated, complete anæmia of the respiratory centre takes place, and convulsions, with spasm of the glottis and suspended respiration, result.

The Cheyne-Stoke's breathing of ascending and descending rhythm, often met with in fatty disease of the heart, is considered as being due to accompanying atheromatous changes, dilatation, and loss of elasticity of the aorta; because whenever it was present the post-mortem examination revealed these morbid conditions.

Twenty-nine of the tabulated cases presented this feature, and in none of these was there any inverse change in the rate of the heart and pulse as compared with the respiration, which has been observed by some authorities.

Dr. Hayden explains the phenomena thus :—If atheroma, calcareous change, and dilatation of the arch of the aorta are present, when the heart is tranquil, as in sleep and repose, the systemic capillary circulation fails—the aid given to it in health by the elastic recoil of the aortic walls being absent—and, as a necessary result, there arises a suspension of tissue change, *besoin de respirer*, and accelerated or suspirious breathing; then, as the systemic circulation becomes re-established, the *besoin de respirer* becomes less urgent, and respiration gradually subsides till a period of apnœa arrives. The fall of the respiration below its healthly standard is due to its previous excessive activity and the exhaustion of the patient.

Contrary to the observations of Dr. Little and to theoretical reasoning, the author has in no case observed these respiratory phenomena to subside as death approaches.

The author, differing from Niemeyer, considers that much may be done *for acute endocarditis* by treatment. He recommends moderate local depletion followed by mild but rapid mercurial action. Opium to procure sleep at night. When the acute symptoms have subsided, such tonics as quinine, strychnine, iron, etc., are most suitable. Long continued complete repose of body and mind is most necessary, and the stronger alcoholic stimulants are to be avoided.

Dr. Hayden explains the greater susceptibility of the right side of the heart to endocarditis before birth, by the fact that till birth the oxidised blood from the placenta is chiefly passed to the right side of the heart.

Angina pectoris is regarded by Dr. Hayden as essentially a neurosis, involving primarily the cardiac plexus and reflected to the spinal nerves through the sympathetic, and occasionally to the œsophageal plexus through the pneumogastric. He finds that, out of 136 cases of valvular disease, only in 3 was angina pectoris present.

In 6 cases of *exophthalmic goître* Dr. Hayden found that palpitation was the most common primary symptom, and thyroid enlargement the next. As a secondary symptom, protrusion of the eye-ball was the most common.—(" Dr. Hayden on the Diseases of the Heart and of the Aorta.")

The Treatment of Internal Aneurism by Rest and Diet.—Mr. Tufnell states that the object of such treatment is to obtain consolidation of the contents of the sac, similar to that which occasionally takes place spontaneously. That his treatment holds out a fair prospect of recovery, even in cases apparently hopeless, is amply proved by the record of ten cases given in the early part of his book.

It is in the earlier stages that the best results are to be hoped for. Confidence and perseverance in carrying out the minutest details is necessary in both surgeon and patient. We have to contend against the distensile action of the forcible blood stream, which tends to thin and destroy the sac, and this is to be effected by means of rest, regimen, and other remedial agents.

The watery elements of the blood are to be reduced, the solid constituents increased; the heart's action is to be diminished in frequency, and the pulse lessened in volume. This is effected by restricted diet, by cutting off the fluid elements of the food; by acting on the skin, kidneys, and bowels; by the continued maintenance of the recumbent position.

Continued rest in the horizontal posture, maintained for some weeks, is the factor of most importance; it quiets the circulation, making it regular and slow. In one of the recorded cases this part of the treatment alone reduced the pulse, and consequently the pulsations in the aneurism, by 2,160 beats in twenty-four hours. The recumbent position is to be maintained for eight or ten weeks, without the patient once sitting erect; great attention should therefore be bestowed upon the arrangement of the bed.

The diet is to consist of three regular meals, constituted as follows:—breakfast, 2 oz. of white bread and butter, with 3 fl. oz. of cocoa or milk; dinner, 3 oz. of broiled or boiled meat, with 3 oz. of potatoes or bread, and 4 fl. oz. of water or light claret; supper, 2 oz. of bread and butter, with 2 fl. oz. of milk or tea, making an aggregate of ten ounces of solid food, and eight ounces of fluid food in twenty-four hours. This quantity is not to be exceeded unless the patient becomes intolerant and restless, and then it must be increased only to such an extent as will tranquillise him. If thirst is great, it may be allayed by a pebble in the mouth, or by sucking a very small portion of ice. Usually, anodynes, aperients and tonics will be necessary in the treatment of these cases. For wakefulness, lactucarium, gr. v., at night, should be given when necessary. If there is bronchial irritation and cough, relief may be expected from lactucarium, gr. xx., ext. of hyocyamus, gr. x., made into six pills, two being taken at bed-time. If the patient has difficulty in swallowing the pill, give tincture of lactucarium, ʒi., cherry laurel-water, ℈ij., water, ℥j., either alone, or with tincture of hyocyamus, ʒ i. Hydrate of chloral may also be given. The bowels are to be carefully regulated, and aperients given only when necessary; the most suitable being pulv. jalapæ co., pil. col. co., and pil. rhei co.

Should the urine beome so concentrated and charged with salts as to give rise to scalding on micturition, bicarbonate of potash, gr. x., in an ounce of water, may be given occasionally.

Pain which is so frequently met with is to be relieved by using narcotics freely, both externally and internally. A very useful prescription is Battley's sedative liq. ♏ xxv., liq. ammon. acet. ʒj., solution of tartarised antimony ♏ xx., mixed with an ounce of cold water. The hypodermic injection of morphia is very useful. Two or three leeches to the thorax, near the aneurismal sac, are often of great service in relieving pain. Maclean has recommended eucalyptus globulus when distress arises from irritation of the vagus; issues sometimes give great relief when they are applied on each side of the spine in cases of thoracic or abdominal aneurism, but they interfere with the recumbent posture. Change of position will often relieve the boring pain, for instance, lying prone; the application of a heated smoothing iron will sometimes temporarily remove the boring sensation. Iron is advantageous in some anæmic cases.

When the aneurism has become consolidated the patient should avoid following any laborious employment; the danger of neglecting this precaution is exemplified in one of the recorded cases.—("The Successful Treatment of Internal Aneurism," by Jolliffe Tufnell, F.R.C.S.I.)

Iodide of Potassium in Aneurism.—Dr. Balfour has never seen a case of internal aneurism that has been treated with iodide of potassium, without relief. It is a perfectly safe remedy, but requires time to produce its effects; it relieves the pain, and all the other symptoms of aneurism, more rapidly and effectually than any other treatment; so great is the relief, that it is not always necessary for the patient to submit to the usual restrictions. The author has treated internal aneurisms during the last eight years with iodide of potassium, and his success, so far as relieving the symptoms and retarding the further progress of the case goes, has been unvaried; in some cases he believes it to have promoted an apparent cure. Dr. Balfour records several cases of aneurism thus treated successfully by himself; he generally gave the iodide in doses of from ℈j. to ʒss. three times a day, with infusion of chiretta. In some cases the patient is at first intolerant of the drug, but this is soon overcome by intermitting the remedy; large doses seem to have less tendency to produce iodism than smaller, thus thirty grains once a day have produced symptoms of iodism, while the same dose given three times a day had no effect. In attempting to produce the specific effect of the iodide, saturation of the blood seems to be necessary, and this must be produced rapidly, as the secreting organs quickly remove it from the system. Dr. Balfour has only met with two cases in which there was absolute intolerance; in one it gave rise to rapid pulse and neuralgic pains in the abdomen, in the other it produced a copious herpetic eruption. With regard to the duration of the treatment, Dr. Balfour considers that in order to obtain permanent improvement, the drug must be given in large doses for many months. A fair trial of the drug should extend over at least twelve months. As adjuvants, the recumbent position and restriction of diet within certain limits, are of the utmost importance; in one case Dr. Balfour kept a patient on his back for ten months. Contrary to the views of Dr. Chuckerbutty and Dr. Roberts, he considers that the iodide exerts no power in aiding the coagulation of the blood in the sac, but is effectual by means of its sedative action on the heart, permitting the walls of the sac to contract; it also has some power in promoting the thickening of the walls of the sac.

Aortic Aneurism, with Increased Secretion of Urine.—Dr. C. Ralfe records two cases in which it was probable that increased secretion of urine was due to pressure on the left vagus by an aneurism of the arch of the aorta.

The first patient, a sailor, complained of frequent paroxysms of agonising pain in the cardiac region; there was a total absence of pain between the paroxysms, no bruit could be heard; there was marked pulsation above the left clavicle, and in the interclavicular notch. After being in hospital about a week, he was put on an extra quantity of milk on account of thirst, and on enquiry it was found that since the occurrence of pain in the chest he had passed an increased quantity of urine in twenty-four hours. The urine was measured daily for a week, and the average quantity of urine passed in twenty-four hours was 116 ozs. The man's weight was 11⅓ stones. The daily quantity had been measured for some months, and had always been considerably above normal. The specific gravity had ranged between 1,009-1,013; there had never been any sugar or any albumen. Several quantitative estimations of the urea and phosphoric acid passed in the twenty-four hours were made by Dr. Law:—

Urea.	*Phosphoric Acid.*
45·9 grammes.	2·4 grammes.
33·7 "	2·3 "
41·2 "	2·3 "
32·4 "	

Six months after admission, the aneurism had increased slowly in size, the supra-clavicular pulsation was more marked, and there was decided prominence over the upper part of the sternum on the left side.

The second patient, a sailor, had pulsation above the left clavicle, and in the interclavicular space; there was an accentuated second sound over the pulsation. The man's weight was 8½ stones. The average daily quantity of urine passed in twenty-four hours was 73 ozs. The patient had not complained of thirst. The following analysis of the urine was made by Dr. Law:—Urine passed in twenty-four hours, 83 ozs; Sp. G. 1,014; urea, 30 grammes; phosphoric acid, 1·6 grammes.

Irritation of the vagus in animals produces polyuria, and in both the above cases aneurism existed, involving that part of the aorta crossed anteriorly by the left pneumogastric nerve. In the first case the polyuria dated from the onset of pain caused by the aneurism.—(" Lancet," Feb. 26, 1876.)

Diseases of the Heart and Aorta—Dr. G. W. Balfour says that cardiac murmurs, though very much relied on, are the least valuable signs of cardiac disease; in making a diagnosis, inspection, palpation and percussion are the means to be chiefly depended upon.

In considering the *murmurs produced by aortic regurgitation*, he states that the diastolic murmur is sometimes only to be heard at mid-sternum, a little below the level of the third rib; in many cases it is loudest at the left apex, in many cases it is loudest at the ensiform cartilage. When a diastolic murmur is audible chiefly in the line of the sternum, at or below the level of the aortic valves, it may be regarded as being due to aortic incompetence. If this murmur is inaudible in the carotids it is always accompanied by a systolic murmur, loudest at the aortic valves; such a case we may regard as having considerable obstruction, with slight incompetence of the aortic valves. If the murmur is audible in the carotids there is always a loud systolic murmur, often not very marked in the aortic or cardiac area, then we have a case of marked aortic incompetence with slight obstruction.

In the treatment of *aortic incompetence* Dr. Balfour uses digitalis extensively, having great faith in its curative action; considering that, so long as small doses are employed, we may continue the use of the drug for years. The administration of large doses is dangerous, and their action must be carefully watched; the effect we want to produce is just sufficient tonic contraction of the ventricle to rather more than counterbalance the dilating powers of the arterial column. The tincture is more reliable than the infusion or the crystallized digitaline. The latter is very convenient, however, for sub-cutaneous injection, when it is advisable to produce its effects on the system rapidly. Dr. Balfour has usually given five to ten minims of the tincture, but latterly often has administered from fifteen minims to half a drachm every four hours. There is always some diuresis set up by digitalis, and, speaking from experience, the author considers that so long as this continues it is quite safe to go on with the drug. Liquor arsenicalis is considered a special tonic to the cardiac muscle. In all forms of cardiac angina Dr. Balfour regards arsenic as almost a specific, and in that accompanying aortic incompetence it is very beneficial.

In dealing with *mitral stenosis*, Dr. Balfour objects to the designation of the murmur, sometimes used as post-diastolic, as tending to produce confusion. The irregularity of rhythm met with in mitral constriction is most strikingly developed when, from any cause, there is co-existing pyrexia.

The *cardiac murmurs* occurring in typhus, enteric, and relapsing fevers, eysipelas, chorea, chlorosis and some other forms of anæmia, and many others, depend upon mitral regurgitation, owing to a complete relaxation of the tissues of the heart, without any evident diminution in its bulk or in the relative dimension of its cavities. In these cases we have a prolonged first sound, or a distinct systolic murmur propagated into the pulmonary and aortic areas, and more rarely a systolic murmur in the mitral area.

Dr. Balfour's experience leads him to believe that *the pre-disposing cause of angina pectoris* is anæmia of the cardiac plexus of either local or general origin; amongst the exciting causes he places the depressing influence of tea, tobacco, malarious poison. In the treatment of angina pectoris he relies chiefly upon the inhalation of chloroform; it not only relieves pain, but regulates the circulation, occasionally "bringing the pulse back to the wrist whence it had, apparently, fled for ever." Of arsenic, also, he speaks very highly, and relates the case of a patient very sensitive to its action, who was much relieved by taking 0·015 gr. of arsenious acid daily.

As diuretics, Dr. Balfour places most reliance on copaiba and raw onions, if taken in sufficient quantity.—("On Diseases of the Heart and Aorta," by G. W. Balfour, M.D., etc.)

Presystolic Mitral Murmur and Presystolic Friction Sound.—Dr. George Johnson communicates a note on this subject, each branch of it being illustrated by a case. In the one there was a soft *diastolic* murmur over the apex, continued into a louder *presystolic*, and ceasing with the ventricular systole. The heart's impulse was *preceded* by a distinct thrill. The phenomena of this case confirm the usually accepted explanation of the presystolic mitral murmur—namely, that it is caused by mitral stenosis, and that it is in time auricular-systolic. The soft diastolic murmur was probably caused by the blood flowing into the ventricle under the influence of the elastic resiliency of the distended pulmonary veins.

The other case was that of a man with advanced kidney disease, in whom pericardial friction-sounds were observed, tending to confirm the accepted theory of the rhythm of the presystolic mitral murmur. A presystolic friction sound was first heard at the base, followed by a *systolic* friction sound at the apex, supposed to be due to the deposit of lymph on the surfaces of the auricle and ventricle respectively. In a few days the presystolic murmur disappeared, while the other remained till the man's death. On post-mortem examination it was found that the anterior wall of the right auricle was covered by a thin layer of recent lymph, which had been smoothed down by the friction, thus accounting for the disappearance of the presystolic friction sound. Over the apex there was a thicker and uneven patch of lymph which explained the systolic friction sound.

In most cases of acute pericarditis three friction sounds of distinctly different rhythm may be heard; two sounds, occurring in such quick succession as to be almost continuous, correspond with the auricular and ventricular contractions respectively—auricular-systolic and ventricular-systolic; while the third, which occurs after a longer interval, is synchronous with the diastole of the ventricles.—("Med. Times and Gaz.," July 10, 1875.)

Extremely Slow Pulse.—Dr. R. Somerville reports the case of a professional man, of temperate habits, who enjoyed good though not robust health, whose pulse numbered only twenty-five beats in the minute. This was after a restless night and several attacks of vomiting following a supper of salt fish. A feeling of oppression at the epigastrium was also complained of. During the following night the pulse became much quicker and very irregular, with tumultuous action of the heart and oppression at the pericardium. Treated with large doses of bromide of potassium with tincture of belladonna, under the impression that the disorder was functional, the heart and pulse improved from the fourth till the eighth day when they attained to perfect regularity of action. The peculiar symptoms observed in the case were probably due to irritation of the pneumogastric nerve, the supper of salt fish producing the effect, either by acting as a poison or by simply irritating the stomach.—("The Practitioner," March, 1876.)

Diseases of the Heart.—Dr. E. A. Sansom regards *angina pectoris* as a neurosis of the sympathetic, and as especially indicative of degeneration of the heart.

The frequent expectoration of *blood-stained sputa* in heart disease he says is a bad sign; it occurs usually with disease of the right side of the heart, and is a late consequence of valvular disease.

A slight *systolic wave of pulsation* in a distended jugular is due to the ventricular impulse being communicated to a distended right auricle.

In *chorea* Dr. Sansom considers that when a murmur is distinctly located at the base or apex, there is an organic lesion of the aortic or mitral valves, and he is unable to regard it as being due either to choreic spasm of the papillary muscles or to mere debility of the ventricular walls without dilatation. This organic lesion is an insidious form of endocarditis, characterised by the presence of vegetations on the endothelial surface, and these vegetations may be gradually washed away by the blood current.

The *soft systolic murmur*, often heard at the cardiac apex in typhoid and other fevers, he regards as depending upon active, tremulous contraction of the ventricular walls during a condition of general anæmia.

Tricuspid Disease.—After quoting Dr. Milner Fothergill's statement that "the left auricle can scarcely be said to have any physical signs connected with it," Dr. Sansom says that though this is quite true in health, yet where dilatation and hypertrophy occur from constriction of the mitral orifice, it may give rise to pulsation in the second or third intercostal space to the left of the sternum. To show that the pulsation is not due either to the contraction of the left ventricle or to the pulse-wave in the pulmonary artery, the author attaches two levers by means of small pieces of adhesive plaster, one over the pulsation in question, the other over the apex of the heart, then if the vibration of the first lever precedes that of the second, the pulsation is clearly auricular.

In determining whether an apex thrill is systolic or presystolic, Dr. Sansom recommends the use of both hands, using the fingers of one hand to note the apex beat, and those of the other to note the thrill.—("Lectures on the Physical Diagnosis of Diseases of the Heart," B. A. E. Sansom, M.D.)

Unusually Rapid Action of the Heart.—Dr. Robert Farquharson records a case of unusually rapid action of the heart, and refers to seven cases recently recorded by others. He divides these cases into two classes:—1. Those in which valvular disease existed. 2. Those in which palpitation may be considered as functional. Two cases come under the first heading, while six come under the second. In some cases the heart resumed its normal action suddenly, while in others it became gradually slower.

In the author's case the patient had palpitation, dyspnœa, etc., and a double murmur at the base. After taking for twenty-five days tincture of digitalis and perchloride of iron, an attack of dyspnœa set in in the morning with pale face bedewed with clammy sweat; pulse 216 per minute. The first cardiac sound was distinct and clear, no murmurs were present; suddenly the heart made a lengthened pause, then followed three or four irregular forcible pulsations, and resumed its action at 104 beats a minute.—("Brit. Med. Journ.," June 12, 1875.)

Dr. J. Cavafy records a similar case. The patient had suffered much privation, was sweating profusely, with much dyspnœa, and pulse 228 per minute; the pulse gradually fell to 176, and then suddenly became very weak, irregular, intermittent, and dropped to 100-108. There was mitral valvular disease, but no murmur was audible till after the fall in the pulse.—("Brit. Med. Journ.," Sept. 4, 1875.)

Epilepsy a Cause of Cardiac Palpitation.—W. M. Lane, M.B., records some cases in which epilepsy gave rise to palpitation of the heart:

Case 1. A healthy-looking man, æt. 42, has had, during three years, pain in the cardiac region, not increassed by pressure, but there was a forcible impulse, which became aggravated by excitement or exertion. Pulse 78, and strong. He has neither valvular disease nor hypertrophy of the heart. Within the last eighteen months he has had attacks of epileptic vertigo and two or three severe epileptic seizures. The pain and palpitation are worse for a day or two before the attacks of vertigo, and immediately before the onset of giddiness they become much worse. The seizure lasts only about half a minute, and leaves his head sore and memory confused; the exacerbation of pain and palpitation continues for some hours.

Case 2. A healthy looking man, æt. 31, with a family history of insanity and epilepsy, complains of pain in cardiac region and palpitation. There is no organic cardiac lesion, but a forcible impulse; the pulse is 72, and strong; there are periods of exacerbation, and either excitement or exertion increase the palpitation. The patient is otherwise in good health, and has no other evidences of epilepsy.

Case 3. A healthy-looking woman, æt. 50, has suffered from palpitation and pain in the cardiac region for a year. The heart's impulse is forcible, but there is no evidence of organic change. She has lately been subject to transient attacks of dizziness, and recently had a fit; she is otherwise in good health.

The chief symptoms are cardiac pain, strong impulse, and resulting anxiety; the heart's action is neither accelerated nor irregular; none of the usual causes of palpitation could be detected. The patients were epileptic. Bromide of potassium, belladonna, etc., have been of no avail in these cases.—("Brit. Med. Journ.," Sept. 18, 1875.)

Nystagmus associated with Palpitation and Profuse Sweating.—Byron Bramwell, M.B., records the following case:—A miner for four years suffered with occasional palpitation, and eighteen months ago with dimness of vision. These symptoms had been increased for three months, and dyspnœa on exertion had set in. He attributes the dimness of vision to the glare of his lamp. He is a well nourished man. Pupils are equal. When he fixes his eyes on an object the eyeballs oscillate backwards and forwards with a slight rotatory movement, and it is greatest when he looks upwards to the right, and is increased when looking at distant objects. Fundus of eye is normal. There is a systolic murmur at the base of the heart. The radial pulse is seventy-two, regular, full, and equal in both wrists. The slightest exertion produces profuse sweating. Sweating always follows palpitation, and sometimes sets in when he is quiescent. Temp. 97°. While under observation, the pupils were frequently unequal. The sweating is sometimes confined to the left side of the face. The temperature on both sides is the same. During an attack of palpitation the eyes become slightly prominent, the pupils dilated, the face slightly livid, the extremities cold. The pulse 144. The patient is sometimes able to subdue a paroxysm by one or two deep inspirations. The paroxysms are completely controlled by nitrite of amyl.

Mr. Byron Bramwell considers that there was some relation between these symptoms, and believes them to depend upon some faulty condition of the cervical sympathetic. The features that point to this lesion are, 1. The variable and at times unsymmetrical condition of the pupils. 2. The profuse, sometimes unilateral, sweating. 3. The prominent eyeballs, dilated pupils and profuse sweating during palpitation. 4. The beneficial effect of nitrite of amyl.—("Lancet," Nov. 27, 1875.)

Heart Disease and Cerebral Congestion.—Dr. Pollock denies the view maintained by Sir G. Burrows, that cerebral congestions may be directly caused by hypertrophied left ventricle, as the increased power of the ventricle is expended in overcoming the obstruction at the valve, and cerebral congestion, like other congestions, is due to the impeded return of the blood. The author lays stress on the fact that the extreme gravity of valvular disease is reached, only, when venous stagnation occurs. The valvular regurgitant diseases are more formidable as they lead directly to dilatation of the cavities of the heart. In regurgitant affections of the valves, digitalis is regarded as most useful.—(" Medical Press and Circular.")

The Treatment of Secondary Affections of the Heart (by Dr. Milner Fothergill).—In cases of long standing high arterial tension, in which the heart has become hypertrophic to make itself equal to the greater amount of work imposedupon it; if from any cause the blood-pressure is still further raised, much disturbance of the heart is occasioned from its inability to overcome efficiently the resistance to the blood flow. In such cases to spur on the heart only aggravates the condition, the aim of treatment should be to reduce the intra-vascular pressure.

The chief conditions under which high arterial tension occurs are lithiasis and hysterical spasm of the arterioles. Low temperature, by contracting the skin capillaries, raises the blood-pressure.

This secondary disturbance of the heart when due to lithiasis (suppressed gout) is speedily relieved by bicarbonate and iodide of potash with buchu. When the symptoms have subsided, the potassio-tartrate of iron may be continued for some time. Sometimes this secondary trouble is complicated with primary disease of the heart, In that case a combined plan of treatment which meets both necessities of the case is to be adopted.

In these cases of secondary heart trouble, the following points are noteworthy :—(1.) The dyspnœa, palpitation and sense of heart stoppage come on independently of any exertion. (2.) The pulse is not that of cardiac debility, even when very irregular it is hard, sustained, and incompressible. (3.) The first sound of the heart is usually good, loud, clear, and of fair intensity. (4.) There is accentuation of the second sound of the heart. This is a sign of great importance, and is never wanting in these cases ; it is commonly heard both at pulmonary and aortic orifices, more intensely at the latter, the point of maximum intensity being the second right costo-sternal articulation. When heard at the aortic orifice, it may be associated with aortic aneurisms (Begbie), with general paralysis of the insane ("West Riding Asylum Rep.," 1873), or with general rise in the blood-pressure in lithiasis.

The principles of treatment should be : (1.) Improve the blood depuration; by removing the accumulated products of nitrogenised waste, by reducing the amount of nitrogenous food taken, by giving lithia and potash with vegetable diuretics, and by acting on the skin. (2.)

If there be any cardiac debility, give some digitalis to counteract the otherwise depressant effects of the treatment. (3.) When the symptoms are relieved, the continued administration of alkalies and iron and restricted diet are advisable. (4.) Active exercise is rather advantageous than otherwise.—("Lancet," Sept. 25 and Oct. 9, 1875.)

Relation of Pulse-rate to Body-weight and to Sex.—Dr. Cumming found in 111 cases in which, from the rapidity of the fœtal heart in utero, he predicted the sex, that the predictions were correct in a majority of 13 cases only. He found that this uncertainty was due to the fact that the pulse-rate depends to a certain extent on the weight of the child; thus, a large female may have a slower pulse than a small male. He considers the ratio between the pulse-rate and the weight of the infant to be, in the case of a male infant, 19 beats per pound, and in that of a female 20·2 beats per pound.—(A paper read before the Obstetrical Society, and published in the Edinburgh Medical Journal. "Lond. Med. Rec.," Feb. 15, 1876.)

The Pulse.—In ascertaining the frequency, regularity of rhythm, etc., of the pulse, Dr. Broadbent, says he takes into consideration the fact that the frequency is altered by position, by food or drink recently taken, particularly stimulants; also by exertion, especially in the weak; by emotion or excitement. Degeneration of the artery is recognised by inequalities felt as the finger glides along it. Again, undue tension is characterised by the cord-like state of the arteries during the intervals of pulsation.

The pulse, as we feel it, is simply the result of the artery filling with blood; it is neither lateral dilatation, nor elongation and curving of the artery.

There are three factors in the production of the pulse:—1. The action of the heart; 2. The resistance in the arterioles and capillaries to the onward flow; 3. The elasticity of the large arteries. On the first factor will depend the rate, rhythm, and strength of the pulse; on the second will depend the size of the artery and the blood-pressure within.

The frequency of the pulse is much more often increased than diminished; it is sometimes diminished in jaundice, in the intervals of relapsing fever, in the later stages of meningitis, and notably in some cases of fatty degeneration of the heart. Disturbing influences of all kinds increase the rapidity, even such apparently opposite conditions as pyrexia and debility; pyrexia, however, lessens the effect of change from the standing to the recumbent posture, while debility exaggerates it.

In pyrexial affections the pulse-rate is often of grave significance; an unusually rapid pulse at the onset of febrile disorder would suggest unusual severity in the coming attack; and if, with the rapid pulse, the temperature is not correspondingly high, our judgment must be formed from the pulse. It is in puerperal affections that the rapid pulse most often gives the alarm. Sometimes an excessively rapid and weak pulse is the most prominent feature of an early stage of collapse. A rapid pulse in pneumonia always foreshadows evil, even though a limited extent of lung be involved.

Palpitation, an unnaturally rapid and violent cardiac action of short duration, varies in its significance, being usually trivial. Patients who complain of uneasiness, cardiac pain, palpitation, etc., rarely have organic disease of the heart. The duration of a paroxysm, usually short, may last twenty-four hours or more; it sometimes occurs as a complication of organic disease.

Intermission of the pulse may occur regularly, for instance, after every fourth, tenth, or twentieth beat, or it may be irregular, occurring sometimes after four, ten, twenty, etc., beats. An intermittent pulse is rare and serious in early life; after middle age it is less significant, and may be induced by dyspepsia, constipation, smoking, etc. In some patients the intermission causes an uncomfortable sensation, as if the heart rolled over. During the intermission the heart's action is not absolutely suspended, it is imperfect; a beat can be heard just after the last proper sound, consisting of a feeble first sound and a weak pulmonary second sound. The aortic second sound is absent, as a rule, the pressure in the left ventricle seeming to be insufficient to raise the valves, the resistance in the pulmonary artery, being less, a little blood passes. Old people with intermitting pulses are less able to withstand disease, and break down more readily, though they are equal to the ordinary duties of life. When this character of the pulse does not depend on organic cardiac disease chloroform is not contra-indicated, and sometimes the irregularity disappears under its influence.

Pulsations of unequal strength, and with irregular intervals, commonly occur in cases of mitral regurgitation; if occurring in other cardiac diseases it is only when the heart is failing or the lesion is complicated. This character of the pulse in cases of mitral incompetence may be explained by the quantity of blood that regurgitates being variable with each beat. When the valves happen to fall into good position, or when they are supported by sufficient blood-pressure within the auricle, the regurgitation will be small, while, on the other hand, when the intra-auricular blood pressure is low or the valves ill adjusted, the regurgitation will be great, the ventricular contraction will be hurried and ill-timed. Respiration materially influences the intra-auricular pressure, it varies the pressure on the dilated left auricle, and the suction action during inspiration prevents the auricular walls from efficiently contracting and carrying the blood onward to the ventricle.

There is often so much obstruction to the pulmonary circulation in pneumonia or bronchitis, that sufficient blood does not reach the left ventricle; hence a forcible contraction has but little effect on the arterial system, and the pulse is small and weak, the face pale, while the heart's action is powerful. A similar result sometimes occurs from excessive frequency of the heart's action, the diastole being so short that the ventricles have no time to fill.

The condition of the arterioles, by varying the resistance to be overcome by the pulse-wave, affects the length of the wave. When the walls are relaxed, the wave is unsustained, and *vice versâ.*

Dicrotism, a phenomenon of arterial relaxation and low tension, occurs in most cases of severe pyrexia; in the early stage of typhus, and throughout the greater part of enteric fever and very often during fatigue, bodily or mental.

The senile pulse is characterised by a long wave and but slight dicrotism; these features are the effect of loss of elasticity in the walls of the aorta. It differs from the pulse of high tension by being easily compressible.

Relaxation of the arterioles may be produced by pyrexia, by external warmth, exercise, fatigue, etc. Also by nitrite of amyl, alcohol, Calabar bean, etc. Contraction of the arterioles may be produced by cold, renal disease, gout, lead-poisoning, digitalis, etc.

When the heart's action is frequent and powerful, and the arterioles are relaxed, the pulse will be frequent, strong, and at the same time large, short, soft, and dicrotous; when well marked it is described as the full and bounding pulse. It occurs just after exercise, especially when there is perspiration; in most pyrexias; in the early stage of most fevers; of acute rheumatism; and in pneumonia. If with the frequent and powerful heart the arterioles are contracted, we have the small incompressible long pulse, met with during rigors, in the early stage of acute gout, in acute renal dropsy, often in scarlatina, in peritonitis and enteritis, in pleurisy, and in meningitis.

If with a weak and rapidly beating heart there is arterial relaxation, the pulse will be frequent, weak, soft, short, dicrotous, perhaps hyperdicrotous, or even fluttering and scarcely perceptible. This is found in states of debility, in the latter stages of fevers, in the typhoid condition, and in the moribund. Should the arteries be contracted we get the thready pulse, occurring in general peritonitis with collapse, sometimes in the last stage of phthisis, and in pulmonary gangrene.

The conditions giving rise to high tension are, 1. Degeneration of the vessels. 2. Kidney disease. 3. Pregnancy. 4. Gout, suppressed gout, or retained nitrogenised waste. 5. Lead-poisoning. 6. Affections of the nervous system. The pulse of high arterial tension is small, hard, and long wave.—("Lancet," Sept. 25, Oct. 16 and Oct. 23, 1876.)

Artificial Respiration in Paralysis of Respiratory Centres.—A case bearing upon this subject is recorded by Mr. G. W. Crowe :—

A bandsman, æt. 16 years, after marching with the band two miles, complained of headache and sickness, and went home. The next day, feeling well, he marched three miles, played all day, and was so ill in the evening as to be helped home. After being ill in bed for a month he was admitted into Warneford hospital, very weak, semi-conscious, but could be roused. There was much emaciation; the abdomen was retracted. Temperature, 99·5°; pulse, 86; respirations, 18; pupils, normal; urine healthy. He complained of great pain in back of head and neck, and moaned frequently. The pain was relieved by ice-bags. He was conscious on the fourth day after admission. Three days later, the pain in the head returned, with pain also in the back of the eyes. He became partially unconscious, with slight delirium during the night. He was quite conscious three or four days later, and again had a relapse. This continued for about thirty-eight days after admission, with constant vomiting and constipation.

The patient, when rather better than usual, suddenly became worse, moaning and crying, as if in great pain; the face was flushed, and he was quite unconscious; the pupils were contracted, the veins of forehead distended. The pulse was full, rapid, regular; the breathing quiet and slow. In about a minute the respiration ceased, the face became livid, the heart continued beating strongly. Artificial respiration was resorted to; in a few moments the lividity began to disappear, and in a minute the hue of the face was quite normal again. In a few minutes the pupils suddenly dilated widely, but still were insensible to light. Artificial respiration was continued two hours and a half; in the mean time an enema of turpentine had been given, but was not retained: priapism was noticed. Artificial respiration was discontinued, in two minutes the pulse rose from 120 to 140 in the minute; in five minutes the heart became intermittent and the face intensely livid. No attempt at natural respiration was made. Artificial respiration was resumed, and in one minute the lividity had disappeared, the pulse was regular, and had fallen to 120. After fifteen minutes the artificial respiration was suspended for seven minutes, the same symptoms again developed, the pulse rose to 150, and a loud systolic murmur was heard at the apex; forty-three minutes later it was again suspended for seven minutes. Temperature was 96°. The artificial respiration was again resumed for an hour, and then, after five minutes' interval, was continued for fifteen minutes, and again interrupted for ten minutes. At the end of five minutes' rest the heart was intermitting; it became regular for about a minute and again intermittent; the pulse rose in frequency during the first five minutes, and then gradually fell, till, at the tenth minute, it was 48. The face almost black, the veins of the neck distended. The artificial respiration was resumed, and the symptoms again subsided, but slowly; the admission of air into the lungs being impeded by accumulating mucus. The artificial respiration was abandoned after five hours and thirty-five minutes from its first employment. The pulse gradually fell to 60, the heart became gradually weaker; a systolic murmur, loudest at the apex, was heard. After ten minutes the heart's action was sluggish, irregular, and beating 20 in the minute. The heart sounds continued to be audible for fifteen minutes.

Autopsy 43 hours after death.—An examination of the head only was permitted. There was evidence of rickets in the legs. Part of the inner table of the skull was deficient near the coronal suture, about the size of a shilling. The meninges were natural. A little fluid escaped on removing the skull-cap. There was not much congestion. The ventricles were much distended with straw-coloured fluid, and a little pus was found in each of the posterior cornua. There was gelatinous degeneration of the lining membrane of the ventricles. The medulla oblongata and cerebellum were rather soft, and a small patch of tubercle was found on the cerebellum where it is in contact with the medulla.

This case proves that by means of artificial respiration the blood can be perfectly re-oxygenated after ten minutes' total cessation of respiration. It shows also that the heart may continue to beat audibly fifteen minutes after all respiration has ceased; it establishes the fact that life may be maintained for many hours by artificial respiration alone.—("Lancet," Oct. 16, 1875.)

Pneumonia (an analysis of 64 cases by Thomas Barr, M.D).—During sixteen months' practice in Glasgow, 5 per cent. of the author's patients were affected with pneumonia. 14 occurred in the first three months of the year; 17 in the second three months; 7 in the third three months; and 19 in the fourth three months. Forty-eight of the patients were male. Of thirty-eight patients affected between the ages of 10 and 50 years, five only were female.

Fifteen cases occurred in patients less than 2½ years of age. In these, about five or six days usually intervened between the onset of constitutional symptoms and the development of the local physical signs.

The seat of the inflammation was the base of the right lung in 34 cases; the base of the left in 25 cases; the apex of the left in 3 cases, and the apex of the right in two cases.

The mortality was about one in six; but, selecting the cases and giving those only between the ages of 6 and 50 years, the mortality was one in every twenty-one cases.—("Glasgow Medical Journal," July, 1875.)

Dr. de Havelland Hall gives an analysis of 12 cases of pneumonia occurring within six weeks at the Westminster Hospital. Ten of the cases occurred in early adult life, and ten of the patients were males. Six died, and the others recovered. The temperature, which is the best test of the severity of the disease, went up to or above 104° Fahr. in eight of the cases.

In 9 patients, the right lung was affected; in 5 of these the base was attacked; in 1 case the two lower lobes; in 1 the upper and lower lobe; in 1 the apex. Of the 3 cases affecting the left lung, 2 had the lower lobes attacked, and the third affected the apex.

Dr. Hall gives in detail the notes of one case of apex pneumonia. The patient was in a state of high fever during four days before the physical signs of pneumonia developed, with drowsiness, delirium, and contracted pupils. The delirium was very violent, but the man was not a hard drinker. The ratio between the pulse and respiration kept steadily about two to one during the height of the disease. Thirty hours before the physical signs were detected the temperature had risen to 105·8° Fahr. On the sixth day of his illness, nearly the whole of the right lung was affected, though the apex was beginning to clear up. Defervescence occurred on the ninth day, accompanied with profuse perspiration and extreme prostration; but after a good sleep, he woke quite rational. Temporary retention of urine occurred at the beginning of convalescence.

Another patient presented the following physical signs:—On the right side dulness up to the nipple anteriorly, and to midway between the spine and the angle of the scapula posteriorly. Slight crepitation in front with feeble distant bronchial breathing. Vocal fremitus and resonance scarcely perceptible. Before death no air could be heard entering the lower two-thirds of the right lung, and the vocal fremitus and vocal resonance were absent. At the autopsy, the two lower lobes of the right lung were in a state of hepatisation, and the main bronchus contained a fibrinous deposit which extended through the bronchi to those of fourth and fifth magnitude.

Another case was remarkable in having the upper and lower lobes of the left lung affected, the middle lobe being healthy. During life the patient was diagnosed to have phthisical consolidation of the apex and pneumonia of the base; the autopsy showed it to be entirely pneumonia.

In another case the pneumonic process was confined to the middle and posterior part of the right lung; the anterior surface was unaffected; there was a rapid fall in temperature on the fifth day.

Dr. Hall considers that there is very often violent delirium in apex pneumonia; and also that temporary loss of sensibility of the bladder is not uncommon at an early stage of convalescence, and gives rise to temporary retention of urine.—("Lancet," July 24th, 1875.)

Dr. Octavius Sturges points out that in all accounts of pneumonia, both ancient and modern, there are described two leading forms; the one epidemic and associated with bad hygienic conditions; the other, less fatal, depending upon bad weather and exposure.

From investigations at St. George's Hospital, Dr. Sturges recognises four classes of pneumonia. The first occurring in those who die of exhausting diseases. The second in the specific fevers, or with some definite affection of a secreting organ, conspicuously with uræmic poisoning and typhus. The third results almost entirely from mechanical causes arising from defective power of the heart, from valvular imperfection, or from altered constitution of the blood itself. The fourth class is the acute sthenic exudative pneumonia. He looks upon the sthenic pneumonia as a disease to be classed midway between the specific fevers and local inflammations, and considers that the characteristic local phenomena are due to the action of some specific poison.

Pneumonia, from the beginning, differs from phthisis in not giving rise to any thickening or destruction of the alveolar walls; but pneumonic consolidation closely resembles that form of phthisis which often occurs towards the end of chronic diseases.

Cold weather influences chiefly the mortality of bronchitis; wet weather also effects an increase chiefly of bronchitis. Though bronchial catarrh is very common in marshy localities, pneumonia is but little prevalent. High northerly or north-easterly winds raise the death-rate of pneumonia rather than of bronchitis. In elevated countries, cold, dry winds influence the prevalence of pneumonia considerably.

Treatment.—Dr. Sturges lays much stress on the question of diet in pneumonia, and urges that the patient should be fed, as far as possible, with a fluid diet, in accordance with his known tastes, during health. When difficulty arises from want of appetite, aversion to food, and real inability to swallow, the use of drugs should be almost limited to stomach tonics such as hydrochloric or nitro-hydrochloric acid and gentian, or, if indicated, antacids or carminatives. Light Burgundy or dry sherry are sometimes valuable in promoting appetite. Narcotics are to be avoided, and if there is sleeplessness, it is better to try to relieve the symptoms that give rise to it, such as pain, by hot fomentations and leeches. For troublesome cough, inhalations of warm moistened air impregnated with succus conii are better than the reputed expectorant drugs. If there is urgent dyspnœa with extensive lung consolidation, bleeding from the arm to the extent of eight ounces is recommended, and Dr. Sturges considers the immediate good results to outweigh the possible ill effects; little can be said for bleeding or any form of treatment if extreme prostration accompanies the dyspnœa. When active delirium occurs at the outset, care must be taken to be sure that typhoid or typhus fever with pulmonary congestion have not been mistaken for pneumonia; if, however, it is pneumonia, the delirium will suggest the existence of alcoholic poisoning or renal mischief. In dealing with watchful delirium absolute quiet should be enforced with a dim light, timely administration of food, and the constant presence of a familiar face. If there is, in addition, headache, an ice-bag should be applied for a short time. In some of these cases of active delirium one full dose of morphia may be necessary, and is better than frequently repeated small doses. If there is extreme prostration with the delirium, narcotics are inapplicable; it is then necessary to try to maintain life by stimulants used freely. Dr. Sturges considers that hyper-pyrexia in pneumonia is but an index of a condition of the lung that is irrecoverable, and therefore looks upon the use of the cold bath as less applicable in this than in other fevers where the structural defect is less ruinous. *The two conditions that it is most necessary to watch are the urgent dyspnœa and failing strength.*

Pneumonia produces very little wasting as compared with typhus or alveolar catarrh. Convalescence is short, secure, and little liable to relapse, yet traces of the byegone illness may remain for some time, such, for instance, as impaired percussion from thickened pleura, or a little crepitation upon deep inspiration, or breathing sounds may be a little coarse with prolonged expiration.—("The Natural History and Relations of Pneumonia," by Octavius Sturges, M.D.)

Pleurisy.—Dr. Gee says that pleurisy may simulate phthisis very closely, that it may be accompanied by the most extreme emaciation even when there is no discharge from the side, and indeed no reason to suspect the existence of an empyema; that a friction sound cannot in some cases be distinguished from phthisical râles, and that the existence of cavernous breathing and pectoriloquy are no proof of a cavity within the thorax, and suggests that in doubtful cases diagnosis may be aided by microscopical examination of the sputa.

Dr. Gee points out that catarrhal enteritis is very frequently associated with localised empyema, more especially in children, and that the empyema may escape notice, the enteritis being set down as typhoid fever, tuberculous, or simple chronic enteritis.

If we believe there exists a small collection of pus within the thorax we should try to evacuate it; no harm results from puncturing the chest, even when pus is not evacuated.—("Transactions of the Abernethian Society," 1875.)

Hæmoptysis in Pulmonary Emphysema.—Dr. Dyce Duckworth, comments on the fact that hæmoptysis is not described as a symptom of pulmonary emphysema, and expresses his conviction that it is not an infrequent symptom in cases of ordinary bronchitis with emphysema. In many cases of well-marked emphysema dilated vessels may be seen traversing the walls of the fauces and pharynx, and these sometimes rupture during paroxysms of coughing causing slight hæmoptysis. The bronchial mucous membrane is probably in a similar condition. The causes of the more serious bleedings are furnished by the nutritional changes that occur in the lungs. As the distension of alveoli and obliteration of septa progresses, the pulmonary arterioles become dilated and their walls degenerated, thus becoming very prone to rupture.—("St. Bartholomew's Hospital Reports," Vol. xi.)

The Emaciation of Consumption.—Dr. Edward Williams endeavours to explain this constant feature of phthisis.

Tubercular disease usually begins in the apex of one lung first, afterwards affecting the other; when it happens that the apex of the right lung is alone affected emaciation does not occur.

Louis considers that emaciation is an early symptom in about half the cases of phthisis, and that in a large proportion of these cases the left lung was the seat primarily attacked. This bodily wasting cannot be due to defective aëration of the blood, because then it would occur in proportion to the tubercular deposit, irrespective of the side affected.

The author speaks of Dr. Pemberton's observation, that in cases of enlargement of the mesenteric glands there is great emaciation, while in scrofulous affections of the breast there is none. Again, we find much wasting occurs in ulceration of the small intestine, while none occurs in scirrhus of the rectum.

Diseased mesenteric glands doubtless prevent the proper passage of chyle along the lacteals, and in some cases the stools present a milky appearance from its presence in them. Such a condition, the chyle failing to pass the enlarged glands to the thoracic duct, is sufficient to produce emaciation.

When the tubercular deposit begins in the left lung the onset of emaciation will be most speedy, because the thoracic duct, opening into the left subclavian vein, will be subjected at a more early stage to mechanical pressure. In addition to this, the venous current in the jugulars and left subclavian veins will be impeded in passing to the right side of the heart; the increased intra-venous pressure at the orifice of the thoracic duct prevents the chyle from entering the veins.

It cannot be that the chyle enters the blood circulation and fails to be animalised in the lungs, thus producing wasting, for this does not accord with the great reduction of the bulk of the blood so constant in phthisis. It thus seems clear that the chyle does not enter the venous system in sufficient quantity to maintain the general nutrition; and this, occurring with the inability of the right side of the heart, efficiently to circulate the blood through the lungs, produces the emaciation of consumption.—("Med. Press and Circular," Oct. 27, 1875.)

Empyema in Children.—In a clinical lecture on this subject, illustrated by three cases, Dr. Edward Mackey (Birmingham) remarks that there are three points to be remembered about empyema, occurring in children, as compared with the same disease in adults :—

1. It is more common, effusions becoming more readily purulent, and this especially in the case of delicate or strumous children.

2. Its operative treatment is more satisfactory; given a free opening, a large drainage tube, and frequent syringing, you may almost depend upon saving a child with empyema; you can never feel quite the same confidence with adults.

3. Its physical signs may be peculiar in certain respects. There will be lessened chest movement on the affected side, flat dulness, increased resistance, and probably bulging, often pitting on pressure and tenderness; but displacement of liver or heart is not invariable, and the breath-sounds, not only at the apex, as in adults, but also over the area of effusion, may be tubular and bronchial, and not absent. The breath-sounds will, in most cases, be deficient when the effusion has become purulent. About the level of the fluid, and especially near the axilla and in front, the percussion note will be tympanitic, and the breath-sounds and cough metallic, as in pneumothorax. The temperature is not so reliable a guide as in adults.

In all the three cases recorded the results of paracentesis were satisfactory, one free opening only being made and frequent syringing used.—("Med. Times and Gaz.," Sept. 25, 1875.)

On the Treatment of a Common Cold.—Dr. J. Milner Fothergill writes as follows:—Colds are due to the loss of equilibrium between the internal heat-producing and the external heat-losing area, by which, in ordinary circumstances, the temperature of the body is maintained. When the loss exceeds the production, a chill or lowering of the temperature takes place. This fall of temperature is followed by an excessive heat-production constituting a pyretic condition which, in its simplest form is recognised as a cold, being, however, usually accompanied by some inflammatory disturbance of part of the respiratory track. The rationale of treatment is "to restore the balance between the heat-producing and heat-losing areas; and in order to do so we resort to such measures as shall increase the amount of blood in the outer area, and so diminish the amount in the internal area, that is, to increase heat-loss and lessen heat-production." Hot fluids and opium and a warm bed, for inducing perspiration, are to be first had recourse to, by which the impending pyrexia may be averted. Should it be already established, however, those agents are to be administered which at the same time lower the heart's action and relax the cutaneous vessels, such as antimonial and ipecacuanha wine. In the case of adults iodide of potassium in guiacum mixture is useful, and in all cases a warm bath is a valuable aid in the treatment. When the succeeding perspiration is too profuse, mineral acids with vegetable tonics are required, the best being dilute phosphoric acid in cascarilla or cinchona. If the pyretic condition is prolonged it must be treated with quinine and an astringent mineral acid. The frequently accompanying bronchial affection is to be treated with ipecacuanha, acetate of ammonia and antimony, while the skin is dry, and the bronchial secretion arrested; when the skin becomes moist and the bronchial secretion is restored, acids with syrup of squills are indicated, and in severe cases carbonate of ammonia and senega.—("The Practitioner," July, 1875.)

Uterine Asthma.—Mr. J. Waring Curran (Mansfield), in a note on this subject, after directing attention to the fact that women with fibroid tumours of the uterus appear to suffer more than those with any other form of tumour, points out that neither inhalations, smoking, nor subcutaneous injection afford any relief, but the whole attention must be directed to the uterus. If the asthma precede the catamenia, the latter must be encouraged to commence by a warm bath and the administration of ergot. Along with this, belladonna must be given freely, internally, in the form of tincture, combined with potassium; and applied, locally, in the form of extract. The latter should be applied not only to the seat of the tumour, but also over the lower dorsal and the lumbar spine.—("The Practitioner," December, 1875).

A Peculiar Form of Asthma.—Dr. J. W. Anderson records the case of a patient whom he watched through a severe paroxysm of asthma. The most remarkable feature in the case was that, even when the paroxysm was at its height, there was not the least difficulty in making a full inspiration, but it was always followed by increased expiratory dyspnœa. During the paroxysm he never required to raise the shoulders, or adopt any plan to assist inspiration; his easiest position was sitting erect on an ordinary chair, with his arms down over the back. During the last ten years his attacks had always been during the months of July and August; they were never attended with coryza or bronchitis, nor was there any reason for supposing it to be "hay asthma."—("Glasgow Med. Journ." April, 1876).

Enlarged Bronchial Glands.—Dr. Eustace Smith states that children who suffer from repeated attacks of pulmonary catarrh are very liable to enlargement and caseation of the bronchial glands. After hooping cough and measles, the same condition is often found.

The enlarged glands are situated where the trachea bifurcates, behind the lower part of the manubrium; they cause dulness on percussion, which often extends to each side of the bone and downwards. Sometimes in young children the thymus gland gives rise to some little dulness behind the manubrium. In rare cases, where there is excessive enlargement of the glands, there is some dulness in the interscapular region.

In the early stages, before the percussion and pressure signs occur the symptoms are very obscure. If the child is sat up with its face bent back till it is nearly at a right angle to the trunk, a venous hum is heard by placing the stethescope upon the manubrium, and as the chin is depressed the hum gradually disappears. This fact is explained by the trachea and enlarged glands being carried forward and compressing the left innominate vein against the bone.

Added to this sign there is often slight impairment of percussion over the manubrium. The venous hum does not occur in cases of flat chest with no glandular enlargement, nor can it be produced by a thymus gland in a healthy child. The thymus is in front of the vessels, the enlarged bronchial glands are behind them. A swelling in front of the vessels does not seem to press upon them when the head is bent back. If the glands are fixed and at some distance from the sternum, the experiment fails.—("Lancet," Aug. 14, 1875.)

Pneumatocele.—Mr. Ch. A. Fox records a case of hernia of the lung in a man between 50 and 60, who had long suffered from asthma. He had never had any injury to the chest. When he coughed a soft, circumscribed, and regular swelling, of the size of a small hen's egg, appeared just above the diaphragm on the left-hand side, and about midway between the sternum and the lateral margin of the thorax. It possessed the feel of those described by previous writers, having the elastic and repellent character especially well marked. The patient wore a band to compress it. It gave him no pain or discomfort, and had been only accidentally discovered by the eye a short time since. It presented no signs of congestion, lobulation, or pulsation, and was not apparently amenable to treatment.

Mr. Fox points out that very few cases of pneumatocele have been recorded, and that most of these have been of the apex or upper parts of the lung, where resistance to protrusion is the least. He refers to four cases reported by Dr. Cockle ("Med. Times and Gaz.," 1873) in a paper on "Intermittent cervical hernia of the lung:"—

1. A man, aged 63, and asthmatic—the case of Morel-Lavallé—in whom the hernia was bilateral and of the size of a large pear.
2. A woman of 45, with a bronchitic cough, having a pneumatocele on the left-hand side resembling a small walnut.
3. A female from 36 to 40 years of age, under the care of Dr. Allbutt, who had "two large tumours on each side of the neck," due to bronchitis and emphysema.
4. A still-born fœtus, met with in the practice of Cruveilhier, in whom the protuberance existed on the right side.

In the fourth case we are necessarily unable to say whether the hernia would have been—or was in uterine life—intermittent. Dr. Cockle, therefore, excludes it when he avers that the other three form the only instances of intermittent cervical hernia in the living subject (as far as he knows) hitherto recorded. Velpeau, however, met with a supra-clavicular hernia in a girl.—("Med. Times and Gazette," Jan. 22, 1876.)

SURGERY.

An Improved Pneumatic Aspirator.—Mr. David Newman, of Glasgow, suggests an improved pneumatic aspirator, for which he claims the following advantages :—*a.* Any obstruction to the needle may be removed without withdrawing it. *b.* The amount of extractive force is more readily estimated and regulated. *c.* The probe may be used, after the fluid is withdrawn, for examining the condition of bone, or in ascertaining the presence of foreign bodies, etc.

The instrument consists of a slender, hollow needle, with one end pointed and the other attached to a hollow cylinder, from one side of which a tube proceeds. Through the cylinder and needle a probe passes, which protudes 1½ inches beyond the point of the needle; towards the end it is slightly thicker, so as completely to fill the canula of the needle. The probe is pulled out, it cannot be withdrawn completely from the cylinder, as the thickened extremity prevents it; the reservoir is a twelve-ounce glass bottle with two tubes attached, perforating the cork, the one inside the other; the smaller projecting one inch beyond the cork, the larger about half that distance. Outside the cork the smaller tube pierces the larger, and they diverge from one another, the larger tube passing to an air-pump, the smaller to the needle.—("Glasgow Medical Journal," April, 1876.)

Paracentesis Pericardii.—Dr. Burder records a successful case of paracentesis pericardii performed at the Bristol General Hospital. The patient, a man of sixty years, had suffered from rheumatic fever several times; he had general anasarca, dyspnœa, feeble pulse, a rapid and irregular heart, with an indistinct mitral systolic murmur. On April 28 the patient was moribund; breathing very oppressive, and could only be carried on while he was lying on his left side, slightly towards his face. The face was livid, the veins of the neck full and tortuous, but not pulsating. The heart's apex was imperceptible, the cardiac dulness was greatly increased; the heart sounds were distant and almost inaudible; the lungs were resonant, except at left base. Paracentesis was performed by Mr. T. Elliott, M.B. (house-surgeon), at Dr. Burder's request, by means of Dieu-la-foy's pneumatic aspirator, the needle being inserted between the fifth and sixth ribs, one inch to the right of the nipple. Forty-two ounces of clear, pale, straw-coloured fluid were drawn off. Towards the end of the operation the heart beat against the end of the needle, but this was avoided by directing the needle more horizontally. The patient was relieved by the operation, but marked improvement did not set in for some hours. In about a month the dropsy had disappeared; the heart's apex could be seen and felt one inch below the left nipple. The cardiac dulness was greatly diminished, and the heart sounds were louder. Upon any exertion, however, dyspnœa and palpitation would set in. Eventually the patient greatly improved and could move about freely.—("Lancet," Jan. 8, 1876.)

Mr. G. E. Moore records a case occurring in the practice of Mr. E. Pease. A strong boy, æt. 13, was taken ill, with symptoms of pericarditis, and in spite of treatment got progressively worse after three weeks suppurative pericarditis was diagnosed and paracentesis was decided upon.

Before the operation the patient was very exhausted, resp. 50; great dyspnœa; pulse 160, very irregular. The præcordium was prominent. There was a confused murmur heard only at the base. There was extensive pericardial dulness. Mr. J. W. Gooch, of Eton, performed the operation with the aspirator. The puncture was made in the fifth interspace, just internal to the normal situation of the heart's apex, the needle was directed inwards, upwards and a little backwards. Twenty-one ounces of purulent fluid were drawn off. There was not the least symptom of syncope, and the patient expressed himself much relieved. Immediately afterwards, resp. 30; pulse, 120, much stronger, and regular. For about twenty minutes there was incessant cough, with scanty, viscid, frothy sputum. Heart-sounds normal at both base and apex; pericardial dulness almost normal.

Four days afterwards the pulse became irregular, and there were physical signs of great increase in the fluid, and the operation was performed a second time; thirty-five ounces were drawn off, affording great relief.

Four days later offensive and exhausting diarrhœa came on, which was checked by chalk mixture.

Seven days after the second operation there was dulness extending up to the clavicle and quite round from the right mamma to the spine behind; paracentesis was performed a third time, and sixty ounces of purulent fluid drawn off. Two ounces of a solution of iodine (one part Tr. Iodi and two parts water) warmed to the temperature of the body were slowly injected by reversing the action of the aspirator. It was intended to remove half of this, but on placing the vacuum in communication with the cavity, some air entered beside the needle; the needle was then withdrawn. There was no pain; pulse, 118; resp., 28; cough came on for a short time. On the following day the patient was better; the "mill-wheel" sound was heard all over the front of the chest.

Six days after the last operation there was a sudden increase in the effusion, and three days later he had fits of syncope, with lividity.

On the following day the operation was performed a fourth time, as nearly as possible in the same place; fifty ounces of pus and a little air were drawn off, and the iodine injection repeated. Temporary relief was afforded.

Three days later, before urgent symptoms set in, the patient was tapped the fifth time; thirty ounces of greenish pus were withdrawn, and iodine again injected.

Again in three days paracentesis was performed, for the sixth time; nine ounces were drawn off, and an iodine solution (two parts Tr. Iodi. one part water) injected, causing a transient sensation of warmth.

After three days, heart-sounds were audible at base and apex, the pericardial dulness nearly normal.

Abscesses having occurred in other parts, severe hectic set in, and later, peritonitis, diarrhœa, vomiting, causing death ten days after the last operation.

Post-mortem.—The pericardium contained a pint of thick pus, and extended to the posterior wall of the thorax, much thickened and covered with soft lymph. The anterior of the lower lobe of the left lung was adherent to front of pericardium; the posterior was collapsed, and pushed away from the spinal column; the heart was pale, soft, and with some fatty degeneration.

Before the operation was first performed, Mr. Moore, with Dr. Rutherford, found that stimulating the pericardium of a cat caused some inhibition of the heart's action, being most marked when the visceral layer was excited. On injecting thirty minims of Tr. Iodi there was transient retardation of the pulse, with slight increase of the arterial blood pressure. — ("British Med. Jour.," June 19, 1875.)

Paracentesis Thoracis.—Dr. Henry Barnes gives the result of his experience of paracentesis with the aspirator of Dieu-la-foy in cases of pleurisy. He records three cases of acute pleurisy in which thoracentesis was attended with the best results. When one side of the chest is full of fluid he objects to allow three or four weeks to try the effects of medicinal remedies, because it gives time for the formation of adhesions which bind down the lung and displace heart. In cases where pus is evacuated by paracentesis, a fair trial should be made of the effects of repetition of the operation before establishing a permanent opening. The author records a case in which empyema was successfully treated by tapping with the aspirator, the operation being performed, in all, four times, and within the space of three weeks, a fifth resort to it being unnecessary. Tapping is also advised in the cases of passive pleuritic effusion that sometimes occur in heart-disease and in post-scarlatinal dropsy. Dr. Barnes considers that the danger of fatal syncope from tapping is not greater than from allowing the pleura to remain full of fluid. The use of Bowditch's syringe, or Dieu-la-foy's aspirator, prevents the admission of air into the pleural cavity. The danger of albuminous expectoration coming on from ten minutes to an hour after the operation, producing asphyxia, must be borne in mind. The site of puncture should be in a vertical line through the angle of the scapula at a point about two inches above the lower limit of the respiratory murmur on the healthy side, provided there is absolute dulness on percussion at this site.—("The Practitioner," Sept., 1875.)

Thoracentesis.—Mr. Berkeley Hill says that in performing thoracentesis dry tapping cannot always be avoided, but no harm results if a fine canula and an exhausted syringe are used. Dr. Ringer uses an ordinary hypodermic syringe. The risk of wounding the intercostal arteries is purely theoretical and never occurs in practice. It is asserted that tapping during pyrexia increases the inflammation; but this is not a necessary result, as Dr. Ringer has shown; and when hectic is present the temperature falls rapidly after the withdrawal of the pus. No matter what other affections may coexist, the patient's sufferings are lessened and recovery is aided by withdrawing the fluid that troubles him. When the fluid re-accumulates it can be drawn off again, and this drawing off of the fluid does not prevent absorption of fluid subsequently effused. Repeated puncture is calculated rather to prevent than favour the conversion of the serous effusion into pus. The heart and lung frequently relieved from pressure are less likely to become bound down by adhesions. The entry of air into the pleura should be avoided, though often no ill result occurs.

As a general rule, tap all effusions the first time, unless there is parietal abscess, hectic or putrid pus; on tapping purulent effusions the second time, maintain a constant drainage. Serous effusions may be tapped as often as the fluid accumulates.

In performing thoracentesis, it is not necessary to make an incision before passing in the trocar, as the elasticity of the skin closes the wound on withdrawing it. For safety, place a piece of lint soaked in collodion over the puncture. The quantity of fluid withdrawn must be regulated by the effect on the patient; great pain, and even danger, may result from drawing off all the fluid. An aspirator is not necessary as a rule, but a syringe is useful in forcing back any shreds that may clog the tube.

For draining the pleura, the puncture should be made opposite the lower angle of the scapula.

Anæsthetics are to be avoided when possible, and if they are necessary chloroform is preferable to ether.

When there is great distortion and displacement of the viscera from collapse of the thorax after empyæma, sudden death by syncope may happen.—("Lancet," July 17, 1875.)

Dr. Wilks recommends free opening and evacuation of the fluid in cases of empyema occurring in adults.

He maintains that when there is pus in the pleural cavity, the lung is destroyed. Often in children, however, large quantities of pus in the pleural cavity become absorbed, leaving the lung practically unimpaired. To make an opening in such cases might do harm by leading to irreparable collapse of the lung.—("Lancet," Oct. 30, 1875.)

Dr. Sparks reports two cases of pleuritic effusion in children in which thoracentesis was followed by recovery, and concludes with the following comments. The cases show:—(1.) That the fluid is not, as some have supposed, necessarily purulent at the end of two weeks in a child of five years, or of nearly three weeks in a boy of eight. (2.) That the fluid removed at a second operation twelve days after the first may retain its serous character. (3.) That it is unnecessary to remove a large quantity of the fluid, for immediate improvement may follow the withdrawal of only a few ounces. (4.) That fluid sufficient to cause considerable depression of the liver may be completely absorbed in less than eighteen days. (5.) That a temperature of 101° at the time of the operation is no contra-indication to it. (6.) That the operation may be followed by a rise of temperature of as much as 3° or 4° Fahr., which is not attended by marked constitutional disturbance; or else there may be an inconsiderable rise of a degree, or a fraction of a degree; or, lastly, there may be no rise at all.—("Med. Times and Gaz.," Sept. 18, 1875.)

Dr. Sansom reports two cases of thoracentesis which resulted in death. In one case of a child aged 12 years, the operation was performed many times, the fluid withdrawn not having become purulent until the second tapping. The chest was washed out with solution of tincture of iodine and later with sulphurous acid solution. A drainage-tube was inserted, but had to be withdrawn owing to the pain and constitutional disturbance it caused. After several tappings the pus became so thick that it would not flow through the canula. Post-mortem, there was found more than half a pint of extremely thick membraniform pus in the cavity of the chest. The whole surface of the pleura was covered by purulent exudation, and over the costal pleura were irregular patches of ulceration. The pleura itself was enormously thickened, in some parts measuring one-eighth of an inch in thickness. The lung was retracted close to the spinal column, and was of the size of a small lemon. In the second case, aged 7 years, no post-mortem was allowed. Thoracentesis was performed twice, pus being evacuated on both occasions. After the second tapping, the chest was washed out with a weak solution of tincture of iodine. Twelve days later, the patient was suddenly seized with sickness, orthopnœa, and pain in the right side of the chest (the side which had been tapped), and died in about twelve hours.—("Med. Times and Gaz.," Dec. 18, 1875.)

MATERIA MEDICA AND THERAPEUTICS.

Gelseminum sempervirens, said to be especially useful in non-inflammatory toothache and in neuralgia in the nerves of the teeth and alveolar processes, was introduced into this country by Dr. Wickham Legg. In large doses it produces general paralysis; some fatal cases of poisoning by it are recorded. It primarily affects the cerebro-spinal centres, secondarily, the respiratory apparatus and heart. The motor nerves of the eye are attacked first, objects cannot be fixed, the lids become paralysed, ptosis occurs, the pupils largely dilate, there is a sense of lightness in the tongue; the lower limbs lose power; the pulse rises in frequency, but remains regular; respiration becomes laboured; the intellect remains clear. This condition occurs about 1½ hours after the injection of the drug.

The following experiments have been made by Dr. Sidney Ringer and Mr. W. Murrell:—A frog was injected with the drug, and soon became apathetic, with gradual loss of voluntary power and reflex excitability. The animal became perfectly flaccid; the breathing, became hurried and superficial, and gradually stopped; the heart continued to beat for some time. After twelve minims of the liquid extract, the animal was unable to turn over in 3 minutes, and death ensued in 2½ hours. In some frogs, soon after the complete abolition of voluntary power and reflex action, upon irritating the limbs, the hind legs were shot out, and all their muscles, with those of the back, contracted; in others, the muscle touched contracted only on applying the electrodes. Again, with others a slight tremor of some of the muscles, chiefly of the thigh, occurred, and was apparently caused by successive contraction of the muscles of the limb. These results occurred in the posterior extremities, after ligature of the abdominal aorta. When the electrodes are applied to the lower end of the spine of a healthy frog the legs are shot out in a similar manner. After poisoning by gelseminum the posterior limbs were more forcibly extended, and remained so for a longer time.

Further experiments proved that the paralysis of voluntary and reflex power was not due to the action of the drug on either the muscles or the motor nerves. It was also proved that the loss of reflex function did not depend upon the afferent nerves. As it can only act upon the cord, it must either do so directly, or by stimulating the inhibitory centre for reflex movement. It does not act through Setschenow's inhibitory centre, because division of the cord below that centre in no degree altered the effect. It therefore destroys the reflex function by direct action upon the cord. The loss of voluntary power is also due probably to its direct action upon the cord, because the intellect remains clear to the last, and the loss of reflex function and of voluntary power proceed pari passu. From further experiments, it appears to have no effect upon the motor nerves.—("Lancet," Dec. 25, 1875.)

Dr. I. Roberts Thompson, who has used it much in pulmonary disease, advocates the use of gelseminum sempervirens as a *cough sedative.*

A young lady, with advanced phthisis, suffered much from her cough, which was accompanied with copious expectoration. The tincture of gelseminum was given in five-minim doses; great relief was experienced, especially towards evening, when the cough had been most troublesome. No nausea, sickness, loss of appetite, or other ill effect ensued.

A lady, æt. 30, with consolidation at the apex of the left lung, was much harassed by irritable spasmodic cough, accompanied with scanty muco-purulent expectoration. Marked relief resulted from the administration of eight-minim doses of the tincture of gelseminum.

A single woman, æt. 26, with chronic phthisis at the second stage, had a very irritable cough, especially at night, that did not yield to ordinary remedies. Five-minim doses of the tincture of gelseminum gave great relief.

A man, æt. 35, with chronic phthisis (third stage), was much troubled by his cough, which resisted the usual treatment. Five-minim doses of tincture of gelseminum proved effectual, and produced no unpleasant symptoms.

A young lady had congestion of larynx, trachea, and left apex, accompanied by excessively irritable cough, which resisted all treatment. Tincture of gelseminum in five-minim doses, combined with syrup of codeia, relieved the cough.

A lady, æt. 32, suffered much from severe spasmodic asthma, which usually yielded to bromide of potassium and belladonna; the attacks became milder and shorter when tincture of gelseminum was added. No ill effects resulted.

A young lady, with advanced phthisis, had her cough relieved by the gelseminum, but slight nausea occurred.

In those cases in which much bronchial irritation has existed, the gelseminum may be combined advantageously with bromide of ammonium, tincture of squills, and syrup of codeia. In one case only has the gelseminum produced slight nausea.

The gelseminum acts probably as a nervous sedative; it seldom produces ill effects, and succeeds where other sedatives have failed. It is useful in a great variety of coughs.—("Brit. Med. Journ.," Oct. 16, 1875.)

The Action of Hyocyamine.—Robert Lawson, M.B., by an extensive series of experimental observations upon the action of hyocyamine, considers that the smallest active doses cause decrease in the frequency of the pulse, and increase in the arterial tension, reduction of temperature, dilatation of the pupil, and but slightly affect respiration. Dryness of the mouth and throat also occurs. If more of the drug is given the depression of the pulse-rate is followed by an increase in the frequency, which, again, subsides suddenly to nearly the normal rate; there is restlessness, followed by motor paralysis, diminished frequency of respiration, and a fall in temperature of 4° Fahr. Large doses increase the cardiac action, without a primary depression, for several hours; they also produce great delirious excitement and interrupted sleep. Lethal doses produce death by syncope during the excitement, or by coma from retention of the poison in the system, and non-aeration of the blood from paralysis of the respiratory muscles. The drug increases the secretion of urine, and has a tendency to produce constipation. In birds it does not produce dilatation of the pupil or dryness of the mouth. If the use of the drug is protracted there is loss of weight, increase in the intra-vascular pressure, increased rapidity of the pulse, of respiration, and of temperature. The loss of weight is eventually restored, the other symptoms persist. If under these circumstances a dose is given, the temperature rises; the fall in temperature and the intra-thoracic changes are due to stimulation of the sympathetic and depression of the cardiac and pulmonary branches of the vagus. The pupil dilates as the result of stimulation of the sympathetic and depression of the third nerves.

In man the motor, cardiac, respiratory, and thermal changes are less marked, the cerebral symptoms more marked than in animals. Paralysis of accommodation follows dilatation of the pupil. Delusions and hallucinations, together with rapid and imperfect ideation occur.

The author gives its action on man in four stages. 1. Slight rise of pulse, dilatation of the pupil, giddinesss, and dryness of the mouth occurring within five minutes. 2. Drowsiness and impaired motor power, reaching its maximum in seventy-five minutes. 3. Wakeful restlessness occurring with incoherence, delusions and hallucinations. 4. Recurrence of drowsiness, with short wakeful periods and some hallucinations.

Dr. Lawson suggests hyocyamine as a valuable drug in nephritis; as it produces marked diuresis probably depending upon the increase of the arterial pressure. In asthma also it may prove useful from its effect in regulating the action of the heart, thus influencing spasmodic affections of the respiratory functions. The influence of hyocyamus in preventing the griping of purgatives is due to its action upon the sympathetic, producing equability of the peristalsis. The fact that somewhat larger doses, in man, raise the frequency of the pulse and also the arterial tension, shows the drug to be a reliable general stimulant. In many cases of maniacal excitement, hyocyamine will produce comparative quiescence; and this is most marked in the bursts of excitement that occur in the progress of senile dementia. In mania, epileptic excitement, the delirium of fevers, meningitis, delirium tremens, and all forms of direct or secondary cerebral excitement, when opium is contra-indicated, hyocyamus may be used with advantage. After the development of the full cerebral symptoms, a period of prolonged sedation occurs, with slow ideation, and an avoidance of muscular exertion.—("Medical Reports," West Riding Lunatic Asylum, 1875.)

Ergot in Hæmoptysis.—Dr. James M. Williamson has obtained very satisfactory results in treating hæmoptysis with ergot. Forty minim doses of the liquid extract were given, two in the first hour, and one every two hours afterwards if necessary, the dose being diminished as the hæmorrhage subsides. No disagreeable effects follow even if large doses are given in a short period; but, generally speaking, if four or five doses do not materially affect the hæmorrhage, another remedy should be tried. The preparation of the drug should be fresh and sound. The subcutaneous injection of ergotin is seldom necessary.

Of fifty cases, in about one-fourth of which the hæmorrhage was profuse, in forty-four all bleeding was rapidly checked. In forty of these cases it was the only drug used; in two others it was effectual after the failure of alum, gallic acid, and dilute sulphuric acid; in another it succeeded after the ineffectual use of acetate of lead and opium; in the other case it was used with success after the failure of both these plans. In six cases ergot failed, and in three of these the hæmorrhage was arrested by gallic acid, in one acetate of lead and opium availed; in one oil of turpentine was successful after the failure of gallic acid; in the last case gallic acid, ergot, acetate of lead with opium, perchloride of iron, ammonio-sulphate of iron, the mineral acids, and oil of turpentine were all used to no purpose.

Ergot has the distinct advantage over gallic acid of not causing griping or constipation, and of not interfering with the liberal use of milk.—("Lancet," Nov. 13, 1875.)

Free Administration of Alcohol in Carditis.—Mr. Garlick records the notes of a case of rheumatic fever with carditis successfully treated by Dr. Wilson Fox by the free administration of alcohol.

There was orthopnœa with but little joint affection, no pericarditis, slight endocarditis, but marked carditis with retarded pulse (60). The pulse become very weak and intermitted, one beat in four or six, with four or five fluttering beats in the interval. The patient was given as much as 24 ounces of brandy in twenty-four hours. When the pulse is very rapid and feeble, or very weak, intermittent and retarded, alcohol being a cardiac stimulant, is indicated, and should be given freely till regularity of the pulse is produced. In these cases we have to combat the tendency to exhaustion, syncope, apnœa, and thrombosis of the heart.—("Lancet," June 19, 1875.)

Quinine as a Gargle in Diphtheritic, Scarlatinal, and other Forms of Sore Throat.—Dr. David J. Brakenridge contributes a paper on this subject, and reports a case of diphtheria in which the result was highly satisfactory. Arguing from the benefit derived from the use of solution of quinine as a dressing for bedsores and other tedious ulcers, he treated all suitable cases of sore throat under his care with a gargle composed of two grains of sulphate of quinine, and five mimims of dilute sulphuric acid, to an ounce of water.

This was the usual strength, but sometimes had to be diminished, and could sometimes be increased. The results are thus summarised:—Simple non-syphilitic ulcers of the throat at once assume a healthier aspect and heal rapidly.

In syphilitic ulcers the cure is hastened by the quinine gargle. Its effect on the sore throat of scarlatina is very marked; the pultaceous secretion being checked, and the inflammatory swelling diminished.

In the early stage of cynanche tonsillaris it is of comparatively little use, but when abscess, followed by abundant discharge of pus results, its beneficial effect in checking suppuration and promoting healing is marked.

In the slighter forms of diphtheritic sore throat, it answers admirably, preventing the extension of the disease and promoting the separation of the membranous exudation; and in severe cases of true diphtheria it has proved particularly valuable.—("The Practitioner," Aug., 1875.)

Treatment of Spasmodic Asthma by the Subcutaneous Injection of Morphia.—Dr. J. Keith Anderson writes to say that the rapidity with which the subcutaneous injection of morphia in this most distressing disease is followed by perfect relief is very striking. The dose used was one-sixth of a grain of hydrochlorate of morphia in a strong solution. Twice only out of twelve cases was its use followed by slight nausea; from which it is inferred that the relaxation of the spasm is not dependent on its nauseating effect. Not only is there no tendency to the recurrence of the spasm after the immediate effects of the morphia have passed off, but there even seems to be a longer period of immunity before the next attack.—("The Practitioner," Nov., 1875.)

Dr. W. Macgregor Burns also bears testimony to the value of the hypodermic injection of morphia in cases of spasmodic asthma, narrating a case in which the relief was almost instantaneous. The same satisfactory result has followed the treatment in almost all the cases in which he has used it.—("The Practitioner," Feb., 1876.)

Dr. G. Oliver follows with a communication on the *Combined Use* *of Morphia and Atropia in the Treatment of Spasmodic Asthma* in which he says that, while regarding morphia as the principal agent, he has found it act more quickly when combined with atropia, which is also of value in obviating the depressing after-symptoms sometimes met with when morphia alone is used. Another advantage is that belladoma quickens the respiration, which, during the paroxysm, has become slower from fatigue of the pneumogastrics, the tendency of opium alone being to aggravate this condition. In a case reported, each remedy was tried alone, and though the use of both was followed by relief, it was much less decided and not so quickly attained as after the combination of both remedies. The very frequent use of the injections did not appear to injure the general health. —("The Practitioner," Feb., 1876.)

CLIMATOLOGY.

Change of Air.—Dr. Madden shows that this question is a very complicated one, changes in the atmosphere which are not indicated by the thermometer or hygrometer being often readily perceived by the valetudinarian.

There are two classes of climates usually selected for phthisical patients, the dry and stimulating, and the moist and sedative. The former class is represented by Mentone, Malaga, and Upper Egypt, etc., whilst in the latter category may be placed such situations as Rome, and Madeira.

In the first, and to a less extent in the second stage of phthisis, a dry climate is preferable, but in the third stage the selection of a suitable locality is no easy task. To use Dr. Madden's own words,—"In undertaking the risk of sending a patient in this stage of phthisis abroad, the physician must be guided altogether by the symptoms of each particular case, and the general condition of each patient."

But climate is not the only need for such a patient, the resources and amusements of a place, its accessibility, and other kindred considerations must be taken into account. The patient's pocket must be consulted, and a person who cannot afford a prolonged residence on the Continent may be saved, or at any rate benefited, by a judicious stay at Hastings or Torquay.

Having discussed the complicated problem of choice of locality, in phthisis, Dr. Madden passes on to show that chronic bronchial affections may be benefited by a moist or a stimulating climate, according to whether they are irritative or expectorative in their nature.

Dr. Madden enjoins caution in accepting the conclusion that because chest complaints are all but unknown in high altitudes, therefore these must be beneficial in the treatment of chest diseases.

An equable temperature is a point to be greatly insisted on.

Dr. Madden then passes on to consider, individually, the various stations which may be, for convenience sake, tabulated as—dry, damp, or unsuitable.

Dry.	*Damp.*	*Unsuitable.*
MALAGA. Good society; nice surroundings and pretty drives.	LISBON. Less popular than formerly.	ALGIERS. Variable. Invalids must be careful of the cold winds and the remarkable difference of temperature in the shade and in the sun. Phthisis with hectic sweats is known to be aggravated on arriving at Algiers. Remarkably good effects in some cases of chronic catarrh and bronchitis, which had tried other places with no success.
MONTPELLIER. Dry and moderately warm; good for asthma and chronic laryngeal and bronchitic affections.	MADEIRA. Very moist, most equable of all places; less popular than it formerly was. The Brompton phthisical patients who were sent there did not do well.	MOROCCO. Climate little known, scrofula abounds.
HYÈRES AND CANNES. Warm, equable and moderately exciting, good for early stages of phthisis and for chronic laryngeal affections.	AZORES.	PAU. Cold, damp, dreary in winter, notwithstanding all that has been said in its favour. Effect bad on all chronic chest diseases, including fatty degeneration of heart. It could only benefit early cases of phthisis or predisposition to that disease, which require nothing else but pure mountain air. Good for spasmodic asthma.
NICE. Exciting climate. Plenty of amusement. Too exciting for phthisis, not to speak of the cold easterly winds early in March.	ARCACHON. First brought into notice by Sir Dominic Corrigan. Combines moist sea air with balsamic odour of turpentine from the surrounding pine forests.	BIARRITZ. Too windy.
MENTONE, RIVIERA AND ADJOINING VILLAGES. Dry, but too cold and confined for phthisis.	PISA AND ROME. Humid and warm, but not suitable for phthisis.	NAPLES AND PALERMO. Variable in different parts of the towns.
CAIRO, UPPER EGYPT. A perfect specimen of a tonic, dry, warm, climate, suitable for bronchitis and early phthisis.		MALTA. Changes of temperature too sudden.
ST. MORITZ AND UPPER ENGADINE. Dry and stimulating. Only could be good in earliest stages of phthisis. As a rule bad.		

The consideration of the spas of Europe occupies the second half of Dr. Madden's book.

The author is of opinion that they are worse than useless in cases of structural, cardiac, or pulmonary disease. The only way in which they can do good is by improving general health. To this rule one or two minor exceptions are given on the authority of several other authors.—("Health Resorts of Europe and Africa," by Dr. Madden, Churchill, 1876.)

Baths, Waters, and Climate Cures.—Dr. Rohden discusses the rationale of sending phthisical patients to high elevations. He shows that though it is true that the inhabitants of these districts enjoy an immunity from phthisis, it is not an immunity which is extended to them when they happen to be situated in other localities, equally high above the sea level. Such immunity Dr. Rohden thinks is ascribable to the sparse and scattered populations, which usually inhabit such localities, and to other favourable hygienic conditions, rather than to a climatic peculiarity.

It is, for instance, the fashion (probably only a passing one), to send patients to Davos, situated 6500 feet above the sea; but, considering the increase in the number of respirations, and the rarefied air at such elevations, the rationale of such a mode of treatment is somewhat obscure.—("Med. Chir. Rev.," Jan., 1876.)

Effects of Climate on the British Army.—From the diversity of conditions under which it is placed, the British army affords a large field for comparative climatology.

Surgeon N. Alcock, of the Army Medical Department, shows that, in the 35th Regiment, phthisis was very prevalent after its return from India, which he attributes to the effect of the climate of India. This regiment, during the four years it was in India, lost 6·6 per 1,000 by deaths and invaliding from phthisis; during the four subsequent years, when it was in England, it lost 24·2 per 1,000, being more than three times the estimated rate of loss for regiments on home service. A similar condition of things, it is contended, would be found in every regiment could the disturbing influences of fresh recruits, etc., on arrival in England, be eliminated.—("Report on Sanitary Measures in India in 1873 and 1874," Vol. vii., 1875.)

The following tables show the percentage, from admissions and deaths at the various places at which the British army was stationed during the years 1873 and 1874. These tables are extracted from the army medical reports, in which, unfortunately, the diseases of the circulatory system are not separated into those which are intra, and those which are extra-thoracic, and hence the climatology of the intrathoracic circulatory system must be omitted. The effects on the respiratory organs alone remaining for our consideration.

Respiratory System.

Place.	Ratio per 1,000 of mean strength.					
	1873.		1874.		1869-73.	
	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.
UNITED KINGDOM	82·4	1·51	89·5	1·60	80·9	1·27
GIBRALTAR	48·4	1·62	48·9	·64	85·1	1·56
MALTA	38·3	·43	43·5	·0	59·7	·0
CANADA	74·8	4·71	81·1	·60	70·6	1·71
BERMUDA	28·5	·5	37·0	1·07	38·4	·42
WEST INDIES (White Troops)	31·6	..	36·2	·58	30·2	·0
" (Black Troops)	76·	·82	71·0	7·78	60·4	2·14
WEST AFRICA (White Troops)	Too	few for	any	returns.		
" (Black Troops)	135·4	6·02	149·7	5·04	82·3	4·57
CAPE OF GOOD HOPE AND ST. HELENA	27·	·82	33·7	1·23	34·9	·74
MAURITIUS	18·1	·0	9·6	·0	34·4	·38
CEYLON (White Troops)	23·6	·0	29·2	·0	39·1	·63
" (Black Troops)	29·3	·0		No	record.	
CHINA (White Troops)	67.6	1·03	88·6	1·05	47·9	1·48
" (Asiatic Troops)	111·1	·0		No	record.	
STRAITS SETTLEMENTS	57·5	2·21	72·6	·0	53·1	1·21
INDIA—						
Bengal	60·1	1·16	61·4	·58		
Stations. Presidency	36·5	·0	33·6	·35	No	record.
Allahabad	57·2	·33	73·7	·30		
Oude	42·2	1·07	34·7	·0		
Sangor	50·6	·0	54·6	·85		
Rohilcund	56·0	·0	52·2	·55		
Gwalior	43·8	·0	49·3	·54		
Meerut	52·5	1·07	65·4	·42		
Sirkind	70·1	1·09	57·6	·72		
Lahore	78·2	2·34	81·5	·0		
Rawul Sindee	80·4	1·11	70·5	·52		
Peshawur	91·0	2·90	109·3	·41		
Madras	43·4	·61	48·9	·52	43·8	·57
Stations. Presidency Circle	24·84	·42	38·21	·47		record.
Mysore Circle	42·90	·39	44·62	·0		
Hyderabad Circle	59·20	·58	61·91	·28		
Burmah Circle	42·81	·0	37·93	·0		
Bombay	45·3	·47	35·1	·57	43	·69
Stations. Presidency	59·1	2·27	63·8	·0	No	record.
Poona	27·5	·0	28·2	·25		
Mhow	54·4	·41	41·5	·0		
Northern	101·8	1·01	42·9	4·09		
Scinde	53·0	·89	15·8	·0		
Aden	29·7	·0	31·3	·0		
ON BOARD SHIP—						
To all Stations except India	39·8	·0				
To India	17·9	1·38				
To all Stations abroad	..	..	43·3	1·52		
From all Stations abroad	..	..	46·6	6·21		
White Troops in transit from one command to another	..	..	14·	·0		
Black Troops in transit from one command to another	..	..	638·5	138·46		

In addition to the data which may be found in the foregoing tables, there are statistics showing the extent of invaliding at some of the stations, and likewise more elaborate statistical abstracts of disease; as these, however, are not arranged on the same uniform plan as the preceding statistics, they are hardly available for comparison. In addition to this, too, they are only special data, which are contained within the previous tables. — ("Army Med. Rep. for 1873 and 1874.")

Climate and Phthisis.—Dr. C. Theodore Williams says that although so much has already been written on the subject of climate by Scoresby Jackson, Sir James Clark, and others, much still remains to be elucidated.

The relations of climate may be studied in reference to phthisis:—Firstly, as a direct cause of the disease. Secondly, as affording immunity from the disease. Thirdly, as ameliorating and curing it.

However much bad food and overcrowding may predispose to phthisis, as undoubtedly in this country they do predispose to it, yet climate plays no insignificant part. Whether we are resident in the tropics, with a mean temperature of 80° Fahr., or in the temperate zone, with a mean temperature of barely 40° Fahr., phthisis is ever present; in the tropics, it is true, as an inflammatory fever, contrasting remarkably with its more chronic form in this country. No place, perhaps, exists better than the West Indies for the study of acute phthisis. A lively picture has been drawn by Mons. Comeiras of this disease at Tahiti, where it carries off one-third of the population; where whole families are reduced in a few weeks from robust health to a state of complete emaciation, and young girls, abandoned by their parents, perish in a condition fearful to witness.

But this climate is not only fatal to Tahitians; when the French frigate, *Sirène*, visited the island, twelve men died, and others suffered from chest disease.

Again, it is notorious that at Gibraltar 43 per thousand of the negro troops, and only 5·3 per thousand of the white troops are affected by phthisis, thus showing the influence not only of climate but of race also.

But if climate can produce phthisis, it can also procure an immunity from the disease. This freedom may be produced by several kinds of climate; it is said, by great altitude, by extreme cold, and by a district which is scourged by ague.

Amongst the advocates of high altitudes in the treatment of phthisis are found Archibald Smith, Kuchenmeister, and others. The former of these authors, from his long acquaintance (twenty-five years) with the Peruvian Andes, is peculilary competent to offer an opinion.

It is, however, to Dr. Lombard of Geneva, that we are indebted for dividing the various altitudes of Switzerland according to the prevalence of phthisis, and fixing the limit of this disease at 5,000 feet.

Kuchenmeister went even further, making the colossal generalization that we could for every locality fix the highest level for phthisis. Further observations, however, have unfortunately shown this to be incorrect. Switzerland even does not quite follow this law, and the crowning objection appears in the inhabitants of the Kirghis Steppes, in Central Asia, who, though resident 100 feet below the sea level, enjoy a perfect immunity from phthisis.

The theory of great cold also falls to the ground when tested by the stern logic of facts. Greenland, the Shetland Isles, and Northern Scandinavia are all found to furnish contributions to phthisis.

Several remarkable instances, however, of the complemental relationship which exists between phthisis and ague have been adduced. Dr. Green shows that in Rutland, U.S., phthisis was unknown, but ague held unlimited sway, till the marsh was drained, and then phthisis instantly appeared. At the urgent request of the inhabitants, the marsh was restored and with it the ague, but the phthisis no less simultaneously took its departure. A certain immunity even now remains from phthisis in the drained fen districts of England.

The curative influence of climate has been in all ages insisted on, though on this point several sceptics exist.

A most remarkable case is cited by Dr. Guibert. A Swiss clockmaker was attacked with phthisis, and ordered to an elevated situation in the Andes; he apparently recovered, and retired to a lower altitude only to re-awaken his dormant complaint. He again tried the high altitude with a favourable result. Believing himself to be quite well, he left his health-resort, but with the same result as before. Seven times in all he was attacked, seven times was he rescued by the Andes, and eventually died after returning to Europe.

It is not only high altitudes, however, that have been supposed to exercise a beneficial influence on phthisis, and it is to the health resorts of England that we must now turn. These are situated on the west and south-west coasts; whether owing their equability, to winds, or to the gulf stream, it is foreign to our present purpose to enquire.

After showing that the isothermal lines in the British Isles change from a direction approximately north and south in winter to an east and west direction in the summer, Dr. C. T. Williams discusses at some length the varieties of phthisis which have received benefit from climatic changes. The main results which he has obtained may be seen at a glance, in the following tables, abbreviated from those which he gives. The number of patients from whom the percentages were taken was 243.

Stages of Phthisis in 243 Patients.		Improved.	Stationary.	Worse.
	Per cent.	Per cent.	Per cent.	Per cent.
First stage	61·31	41·42	22·85	35·71
Second stage	15·63	40	8·57	51·43
Third stage	23·04	35·3	29·41	35·3

Whilst the patients were at the various localities in question, they were all ordered cod liver oil, and the majority took it. Besides this, any local treatment for which there was an indication was employed, and the chief tonics which were in use were the mineral acids, and bitter substances of vegetable origin, such as quinine, cascarilla, calumba, gentian, strychnia, etc.

Amongst various places resorted to, it was only in the case of Torquay, Hastings, Bournemouth and Ventnor, that a sufficient number of examples occurred to make it worth while to exhibit a percentage.

PLACES.	PATIENTS.			RESULTS.		
	Patients.	Winters.	Average of Winters.	Improved.	Stationary.	Worse.
				Per cent.	Per cent.	Per cent.
Torquay	100	153	1·53	60	10	30
Bournemouth	20	20	1·00	65	10	25
Ventnor	58	79	1·36	68·96	6·89	24·13
Hastings	57	75	1·31	71·93	5·26	22·80

It appears, then, that Hastings yielded the best results, and Torquay the worst. After eliminating the various disturbing influences, such as soil, and the character of the disease, Dr. C. T. Williams comes to the conclusion that we must explain this difference in the results by climate, and draws the conclusion that we should seek a bracing and gusty, rather than a mild and relaxing locality.

A similar analysis of the foreign wintering places is then effected, the general results of which will be seen by the following table :—

PLACE.		PATIENTS.			PERCENTAGES.		
		Patients.	Winters.	Average of Winters.	Improved.	Stationary.	Worse.
					Per cent.	Per cent.	Per cent.
Calm inland climates, temperate and moist.	Pau .. Bagnères de Bigorre ..	44	76	1·7	50	4·55	45·45
	Rome ..	18	22	1·23	55·56	11·11	33·33
Dry climates of the Mediterranean.	Hyères .. Cannes .. Nice and Cimiez .. Mentone .. San Remo .. Riviera generally .. — Riviera ..	82	135	1·64	58·23	20·73	20·73
	Mediterranean Basin ..	100	..	..	58	21	21
	South of Europe and Mediterranean Basin, etc. ..	152	..	..	62·5	20·39	17·10
Very dry climates.	Egypt and Syria ..	20	26	1·3	65·6	25	10
	Cape and Natal ..	9	13	1·34	58·62	24·13	17·24
Moist and warm Atlantic climates. Marine.	Madeira .. Canaries (Teneriffe) .. St. Helena .. West Indies ..	70	120	1·61	51·43	14·28	34·29
Voyages.	Sea voyages to Australia, America, India, China, Cape and West Indies ..	18	45	2·5	89·00	5·5	5·5

After reviewing more minutely the several characteristics of the various climates, Dr. C. T. Williams then passes on to consider the indications for the various climatic changes.

Such patients as can live in England, without contracting fresh mischief when they take proper care of themselves, should, he says, decidedly remain at home, as, also, should those in whom the disease is well advanced, either by the deposition of tubercle or the presence of cavities; for in this latter case they will but go abroad to die. On the other hand, there is an indication for change of climate in the first stage, if the disease arises from repeated inflammatory attacks, or in the third if the vomica is but small.

If, however, it be decided to send a patient abroad, we should well weigh the question of a sea voyage, with all its uncertainties. The cases which usually succeed best under this mode of treatment are such as occur in over-worked office clerks, or where hæmoptysis is abundant.

In an ordinary chronic phthisis a dry climate will be found to be the best, whilst a moist climate is rarely useful except in phthisis of a catarrhal origin.

It is, however, above all things necessary to look to the temperament and digestive powers of the patient, and a spot to be suitable must be so not only from its climate, but also from its food supply and surroundings; and it is in these particulars that so many otherwise healthy high localities fail.

To the foregoing conclusions which Dr. C. T. Williams endeavoured to establish in his Lettsomian lectures, and also to the facts on which these conclusions were based, the following objections have appeared.

Dr. Strangways Hounsell objects to the statistics on the subject of Torquay, on the ground that they are not sufficiently numerous. He shows that at the Western Hospital, Torquay, during the last thirteen years 68 per cent. of the patients have been improved, and only 20 per cent. returned worse than when they came. He also urges that winds are very injurious to chest complaints.—("Brit. Med. Journ.," April 1, 1876.)

Dr. Lund objects to Dr. Williams's strictures on the climate of Madeira, and shows that its dampness is not so great as might be expected. He ascribes the numerous deaths that have occurred there to the fact that formerly, when phthisis was less understood than it is at present, so many dying invalids were sent out.—("Brit. Med. Journ.," April 1, 1876.)

The dampness of the climate of Madeira is again denied by Mr. Dyster, and in proof of his statements he gives a series of dry and wet bulb thermometer readings.—"Brit. Med. Journ.," April 29, 1876.)

Dr. C. T. Williams defends his own opinions in opposition to those of Dr. Lund and Dr. Hounsell, in a paper entitled, "The Climate Results of Torquay and Madeira."—("Brit. Med. Journ.," April 15, 1876.)

Dr. Boggs is of opinion that patients should only be recommended change in the early stages of phthisis; he speaks of the various effects of winds, and prefers a sheltered locality, not too far from the sea. Patients who are directly exposed to sea breezes are, he says, liable to hæmoptysis.—("Brit. Med. Journ.," April 22, 1875.)

Dr. R. Shingleton Smith speaks in favour of sea voyages, but is of opinion that it is the homeward voyage, when the patient has become accustomed to the disagreeables of sea life that is of the most benefit. A sea voyage should be prescribed rather where there is predisposition to phthisis, and not where the mischief has already begun.—("Brit. Med. Journ.," Sept. 16, 1876.)

Dr. William Thompson speaks favourably of the climate of Algiers, and considers it especially beneficial in commencing phthisis. In some cases, the pyrexia was much reduced, chiefly owing to the fact that patients sleep so well at Algiers. Bronchitis, asthma, and cardiac disease all seem to do well in this locality.—("Brit. Med. Journ.," Sept. 30, 1876.)

The early stages of phthisis are much benefited by a stay in the Enghadine. The climate is very dry, but subject to variations of temperature. The springs at St. Moritz are said to be peculiarly efficacious, though it is a matter of doubt if the advantage is not gained more from the air than from the waters.—("Lancet," Sept. 30, 1876.)

Treatment of Chest Diseases by Mineral Waters.—Very great attention has been paid to the local treatment of pharyngeal and laryngeal affections; the springs of brine, as at Reichenhall, in Bavaria, and at Bex, in Switzerland; of salt water, as at Soden; of alkaline, as at Ems; and of sulphur waters in many other places, are now systematically applied. Of late years the inhalation of gases and of pulverised waters has become a common practice in the treatment of pulmonary complaints. Patients spend some hours in rooms having their atmosphere impregnated with the waters required, thus inhaling a certain amount of their spray or vapour. At Lippspringe and Inselbad, and at Panticosa, patients are supposed to be the better for inhaling the excess of nitrogen with which their waters are charged. At Reichen hall, salt waters are pulverised; at Weilbach and other places sulphuretted vapour is inhaled. This last procedure has been very widely followed of late, in France; it is thus described by Dr. Rehden:—

"Gargling the throat with sulphur vapours, applying the spray to the back of the throat, and inhaling the vapour of sulphuretted hydrogen, have all found especial favour in France, and may be seen practised at Marliotz, Allevard, Enghien, Amélie les Bains, Eaux Bonnes, and most of the Pyrenean springs. The effects of these inhalations are thus described by the French:—First, there is a sedative action, along with a general feeling of comfort; then comes a period of discomfort, circulation and respiration both being irregular and accelerated; next comes the stage of tolerance, in which the pulse is slower than its normal state; and lastly, if the sitting be continued too long there is the stage of intoxication, with headache and even with vertigo. The process suits lymphatic and nervous better than sanguine temperaments; delicate people bear it quite as well as the strong; women and children are more readily affected than men. The therapeutic effects attributed to inhalation are, the relieving of congestion of the bronchial mucous surfaces, especially of capillary bronchitis; promoting the absorption of plastic deposits; above all the relieving dyspnœa, and bringing into work portions of the lungs that have been inactive. Inhalation sometimes induces neuralgia of the sixth pair."—("Baths, Waters, and Climate Cures," Med.-Chir. Rev., Jan. 1876.)

The Influence of Altitude on Vital Capacity.—Mr. F. Cresswell made some observations on two naval officers during three days, at an altitude of 2,950 feet.

A.'s normal vital capacity of 325 cubic inches decreased to 290·5 cubic inches on the first day, gradually rising to 313·8 cubic inches on the third day.

B.'s normal vital capacity of 270 cubic inches was reduced to 241 cubic inches on the first day, gradually rising to 265·5 cubic inches on the third day.

The temperature varied from 61° Fahr. to 52° Fahr., and the barometric pressure 27·78 inches to 27·6 inches.

Both the subjects of examination were accustomed to the process, so that the progressive increase in the vital capacity during the three days was due to the lungs accommodating themselves to the decreased pressure, whatever caused the first diminution being removed or neutralised.

The explanation is, that the decreased pressure on the pulmonary tissue causes an increased quantity of blood in the lungs, and hence diminishes the vital capacity; either this hyperæmia gradually subsides, or else compensatory dilatation of the pulmonary air-cells occurs, and, as a necessary result, the vital capacity gradually regains its normal standard.—("Brit. Med. Journ.," Nov. 27, 1875.)

Climate and Phthisis.—Dr. Parkin considers England a very suitable climate for phthisical patients, and that southern climates are injurious. He points out the fact that the mortality of our soldiers and sailors from phthisis is greater in warmer climates than at home; and, in the case of the West Indies, where the mortality is less than at home, he explains it by assuming the existence of a law of nature that two specific diseases never prevail at the same time in the same subject; hence the great prevalence of fever there negatives the existence of phthisis.—("Brit. and For. Med.-Chir. Rev.," April, 1876.)

Laryngismus.—Dr. Gee found that out of sixty-three cases of laryngismus under his care between January, 1866, and December, 1868, no less than fifty-eight occurred in the first half of the year, viz., between the months of January and July; whilst in the second half of the year only five cases occurred, and of these two were in December. Dr. Gee considers that it is the weather that produces both the diathesis and the paroxysm. The confinement of children to warm close rooms throughout the cold weather produces a state of the nervous system favourable to laryngismus, and the cold damp air acting directly on the skin and respiratory organs excites a paroxysm. The predisposition is acquired in the course of months, and would seem not to immediately disappear on the accession of fine weather. Acting upon the information contained in these statistics, Dr. Gee urges attention to general hygienic conditions as the essential part of the treatment. Fresh air and cold sponging of the skin are the most valuable remedies.—("St. Bartholomew's Hospital Reports," Vol. xi.)

South Africa for Consumptives.—Dr. J. A. Ross speaks highly of the value of a voyage to and from the Cape of Good Hope for consumptive patients; it includes most of the advantages of a voyage to Australia, and excludes the danger of rounding Cape Horn in returning. He found, however, that consumption existed in all the South African colonies, occurring among the visitors, and in a much less degree among the resident settlers of some years' standing. With the coloured population the mortality is high. The Cape physicians advocate life in the open air, at a high elevation.

Amongst other cases Dr. Ross records that of a patient who had left England with considerable tubercular consolidation of both lungs, and laryngeal mischief, but recovered, and became active and able to do close office work.

The localities recommended most are, Aliwal North, Cradock, Bloemfontein, all with an elevation of over 3,000 feet, well situated, with a dry soil, and a fine exhilarating atmosphere. At the last named place some of the comforts of civilisation may be obtained. The journey from the coast is rough, but calculated to benefit phthisical patients.

The change of climate is only recommended for the subjects of non-tuberculous phthisis.—("Lond. Med. Rec.," May 1876.)

THE NETHERLANDS.

Report by Dr. Riendderhoff (*Rotterdam*).

The principal work of the year in the department of chest diseases is contained in "Nederlandsch Tijdschrift voor Geneeskunde." Second Series. This periodical contains three papers by S. Talma, M.D.:—

I. "Contributions to the Theory of the Bronchial Râles." Vol. xii. 1. p. 93.

II. "Remarks on the Theories about the Vesicular Respiratory Sound." Vol. xii. 1. p. 103.

III. "Contributions to the Theory of the Sounds of the Heart and Arteries." Vol. xii. 2. p. 1.

I. *Contribution to the Theory of the Bronchial Râles.*

After some preliminary remarks on the theories of Laennec, Skoda, and Traube, with respect to the respiratory sounds, and more particularly about the moist rhonchi, called gurgling rhonchi, by P. Niemeyer, the author communicates some experiments made by himself.

It appears from these, that the circulation of air through glass tubes, partly filled with any liquid, produces waves in this liquid, which, in the meanwhile, moves in the direction of the current of air. These waves become vibrating when they have attained a certain height. The amplitude of these vibrations increases according to the size of the waves. When the vibrations have a certain strength, gurgling sounds are heard. These sounds are the same as the rhonchi attributed by Laennec and Skoda to the bursting of bubbles. It is clear, that in these cases, the bursting of bubbles is quite out of the question, because the sound is perceived at the open end of the glass tube, as soon as the wave at this end has become sufficiently great and the vibrations sufficiently strong, without the formation of any bubble.

The origin of these sounds is, therefore, to be attributed to the formation of what may be called tongues by the waves produced in the liquid, acting in the manner of the tongues of musical instruments.

The pitch of the sounds, thus produced, differs according to—

1. The consistence of the liquid; the tone of the sound is lower when produced by a watery solution of gum arabic, than by water.

2. The diameter of the tubes.—The tones are lower in wide tubes than in narrow ones. In the last case the sounds have more the character of small bubbling rhonchi.

3. The length of the tubes. In tubes of the same size but of different lengths, the sounds are lower as the tubes are longer.

On account of this, the gurgling rhonchi may be explained as follows: vibrating tongues are formed in the liquid, by which secondary vibrations of the surrounding air are produced. The tubes with the tongues of liquid are therefore identical with organ-pipes, or, in other words, with tongue-instruments.

The physical laws for the organ-pipes are applicable to these tubes. The "snoring" and "crackling" sounds are commonly called dry rhonchi. Their character is attributed to the greater degree of consistence of the liquid. This opinion is justified by the above-quoted experiments. From this it may be inferred, that the dry rhonchi arise in the same manner as the moist.

II. *Remarks on the Theories about the Vesicular Respiratory Sounds.*

The origin of the vesicular respiratory sounds has not yet been explained to the satisfaction of all authors.

After referring to the opinions of Laennec, Skoda, P. Niemeyer, Gerhardt, and Baas, Dr. Talma communicates the following experiments made by himself: Air was driven through a tube of caoutchouc of nine mètres (about twenty-eight feet) length, with smooth walls, and without contractions. At each end of this tube sounds were heard, analogous to those produced by the flowing of water behind contractions. A similar, but weaker, sound, was heard at the middle of the tube and throughout its whole length.

This sound might either have a local origin or be propagated from the ends of the tube.

By a partial compression of the two ends of the tube, the celerity of the current of air was diminished. Notwithstanding this, the sounds became stronger, in proportion to the degree in which the ends were narrowed. On the contrary, the sound at the middle of the tube became distinctly weaker. From this it must be inferred, that the last-mentioned sound was of local origin.

Therefrom it appears, that the flowing of air with sufficient celerity through a smooth-walled tube without contractions produces a sound.—Friction of the air along the walls of the tube being impossible, it is clear that a rhythmic friction of the molecules of the air against each other must be the cause of the sound.

III. *Contributions to the Theory of the Sounds of the Heart and of Arteries.*

After mentioning Th. Weber's theory of the vascular sounds and

and giving a critical review of the various opinions expressed by Skoda, Kiwisch, Corrigan, Heynsius, Nolet, P. Niemeyer, Traube and Thamm; Dr. Talma concludes that a sufficient explanation of the causes of the vascular sounds is still wanting.

In order to contribute to this end he communicates the results of many experiments, made by himself, with smooth-walled, elastic, and non-elastic tubes of various lengths and sizes, through which liquids were driven with different pressures. These experiments were varied in different ways, with the following results:—

When, at the beginning of a tube, whilst a liquid is streaming through it, the liquid undergoes a sudden increase of pressure of short duration, the celerity of the current and the lateral pressure in the tube equally present an increase: by this increased celerity of the current, a sound of short duration arises in the tube, having its physical cause in the vibrations of the liquid.

In the arteries no sound is heard when, during the diastole of the heart, the blood flows continually through them; because the current is then too slow. But when, at the origin of the arteries, the pressure on the blood becomes suddenly increased by the systole of the heart, the state of things becomes the same as in the elastic tubes. And when the first described sound may be attributed to the vibrations of the fluid, the same is applicable to the sound that is to be heard during the diastole of the arteries.

Therefore: the physical cause of the first arterial sound is found in the vibrations of the liquid.

This theory is quite sufficient to explain the modifications of the arterial sound in physiological and pathological conditions, and is illustrated by what is observed about arterial sounds in health and disease.

From all this, the author concludes that:—

The first sound of the aorta and the sounds of the other arteries depend on vibrations of the blood, occasioned by the great celerity given to the current by the systole of the heart.

Concerning the second sound of the heart, the author mentions the theories of Rouanet, Gendrin, Hope, and Williams, the opinions of Pigeaud, Bouillaud, and Rapp, and those of the Dublin, the London, and the American Committees.

He then communicates an experiment, made by himself: A glass tube was connected with a bladder, and its open end was passed through the aorta into the left ventricle of the heart. By compression of the bladder the mitral valve could easily be closed and brought under a strong pressure. Neither sound nor murmur could be heard. The same tube was fastened in the aorta above the semilunar valves, the coronary arteries having been tied. When the bladder was suddenly compressed, no sound was perceived. This experiment shows that the mitral and aorta valves are unable to produce a sound.

In a second experiment a tube of two mètres (about six feet) length was connected with a bladder, and both filled with water. By alternately compressing and relaxing the bladder, a short sound, not propagated from the bladder, was produced over the whole length of the tube. This sound was not unlike the sound of the heart. From this it follows that, in the well-known experiment of Rouanet the same results may be obtained without the valves of the heart as with them.

In consequence of these considerations the author concludes that:—

The second sound of the heart depends entirely upon vibrations of liquid; the first sound must certainly to a great extent be attributed to the same cause.

In view of the experiments of Dogiel and Ludwig the author admits, that the sound of the muscular contractions of the heart may contribute in a slight degree to the production of the first sound of the heart.

FIJI.

The Climate of Fiji.—A paper read by Mr. R. C. Holmes, before the Meteorological Society, on the climate of Fiji, gives an interesting account of the results of a series of meteorological observations made at Delanasau, in the Bay of Islands, on the north coast of the province of Bua, Fiji, during the five years ended the 31st of December, 1875. During that period the highest temperature recorded was 97·7°—viz., on the 12th of January, 1871, and the lowest reading of the thermometer was 58·5° on the 20th of August, 1875, the extreme range being thus 39·2° in the five years. The average annual mean temperature throughout the period was 79·1°. The greatest fall of rain recorded in any twenty-four hours was 14·95 inches, which occurred on the 19th of March, 1871. The average annual rainfall is given as 124·15 inches, and the number of days on which rain fell in the year as 170. After describing the various characteristics of the islands, their changes of seasons at various periods of the year, the conditions of the different months, the hurricanes and storms, earthquakes and waterspouts to which they are subject, Mr. Holmes propounded the question, "Is the climate of Fiji a healthy one?" To this he gave an unhesitating reply in the affirmative. As a tropical country, Fiji is remarkably healthy. The fatal diseases so common in other countries situated in the same latitude, such as cholera, fevers of various kinds, liver complaints, etc., are almost unknown there. The geographical situation of the islands is extremely favourable. Surrounded on all sides by an unusual expanse of water, and placed in the region of the trade winds, they enjoy almost perpetual breezes. The smallness of the islands enables the pure air to penetrate into the inmost recesses, and every portion of each islet is perfectly open to the winds from every quarter. Calms, the great bugbear of all tropical climes, are never known, and to this circumstance the healthy condition of the islands is mainly due.—*The Times.*

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*** References to entire Reports and their Sections are printed in *italics*, and the names of their Authors in SMALL CAPITALS.

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